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STORAGE OF HONEY—C. P. Dadant
HONEY FOR AUTO RADIATORS—
HONEY RESOURCES OF NEW JERSEY—E. G. Carr
SANITARY PACKAGES FOR HONEY—D. C. Gilham

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WOODHAVEN, N. Y.

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Mt. Baker photographed at a distance of 95 miles by F. Dundas Todd.

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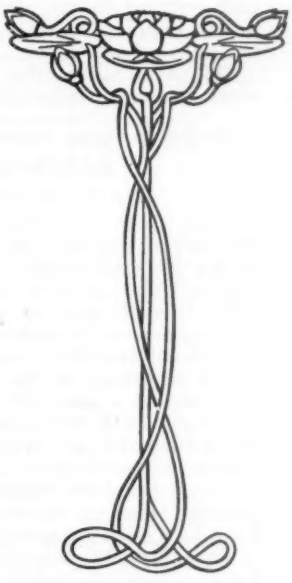

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1 untested queen	$1.00
1 tested queen	1.50
1-lb. package of bees	2.00
2-lb. package of bees	3.00
3-lb. package of bees	4.50
Nucleus, per frame	1.50
Additional pound of bees with nucleus	1.00

No disease; safe arrival guaranteed; bees inspected.

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CHAS. DADANT TO ED. BERTRAND ON QUEEN INTRODUCTION

October 29, 1880.

The queens on which you have been unable to succeed in safe introduction were killed because you have not followed my instructions. We never give the bees time to ascertain that they are queenless. We place the cage containing the queen to be introduced, in the hive, immediately after the queen to be changed has been removed. When a colony knows that its queen is missing, it is in the greatest confusion. It immediately begins to think of replacing her. If, in this crisis, it is given a queen, the bees are astonished and defiant. But if the queen has been given immediately after the removal of the other, and especially if she is placed at the spot, or near the spot, where the bees expect to find their queen, the one which you introduce, even though in a cage, and even although having a different odor, is recognized as a queen and accepted

But it is necessary that the emerging of the queen from the cage should take place without flurry, without excitement, of course; for a frightened queen resembles a stranger and behaves as a robber or as a stranger would do.

When you release the queen while the hive is open, in a time of dearth, robbers are near; the queen sees daylight and attempts to run; thus she may be destroyed.

If, on the contrary, you release her without excitement, she creeps down among the workers, they welcome her and introduction is accomplished.

Thus, especially in times of scarcity, the cage must be close to the brood and the queen must be in reach of food. Queens die in the cages, when the colonies are short of food, because the bees have nothing or next to nothing in their crop and hesitate to give up the little they have.

As for queens balled and killed by the bees, this rarely if ever happens in a season of abundant crop.

According to my experience, any queen which will go accidentally away from the brood combs, during a time of dearth, is in danger of death.

Here is my explanation of this danger: During a shortage of honey, robbers are more or less constantly trying to enter the hives, even some of the best guarded colonies.

When you open a hive, a few may penetrate between the combs. Their presence irritates the bees. If either through fright or accident, the queen leaves the brood combs, the workers, irritated by the robbers, may take her for an intruder and ball her. One angry worker may be sufficient to cause her to be balled and killed before she is recognized.

This accident happens oftener with black bees than with Italians, as both Italian queens and workers are less disposed to become excited.

During a honey crop, there are no robbers, so there is no occasion for irritation. The workers have a full honey-sac and are therefore in good humor. The queen has been laying all over the brood chamber and the bees are accustomed to see her wherever there is brood. Thus there is no danger of her being mistaken for a stranger.

(Charles Dadant was then 63 years old. He had been successful in importing queens, hundreds of them, from Italy, for 16 years, and each of those imported queens had been introduced to colonies in his apiary and retained there, before re-shipping them, for at least a month, or until their quality was ascertained. Hence his very positive experience in queen introduction.

It may be necessary to add here that his method of introduction of imported queens was as follows:

First secure the imported queen from the cage in which she was received; at that time they were received in small boxes containing two combs, one of honey and one dry comb, with about 50 workers. Next kill the queen of the old colony in which she is to be introduced. Then put her, without attendants, in a small introducing cage, which will be lowered between two combs of brood. After 48 hours, release her by removing the stopper of the cage and putting in its place a piece of honey capping. Within a half hour the bees release her.

Do not disturb the colony for a week after introduction.—C. P. D.)

BURR COMBS SUPPLY WAX RESERVE

By E. M. Cole.

Prof. Lyle of the Iowa College Extension Service recently related to me an interesting observation in bee behavior, new to me.

He had planned on going over all the top bars in his colonies and cleaning off all the burr combs to permit easier handling of the frames.

Owing to a press of work, the job was neglected for some time, and when they did get around to it they found the work done. The bees had removed the burr combs almost completely; some of them as clean as if they had been scraped.

Probably the honey-flow was not heavy enough to cause much wax to be secreted, and, needing it for capping brood, the bees had resorted to these burr combs as the handiest place to get it. This probably saved Mr. Lyle from having some damaged combs, as bees, when in need of wax, frequently gnaw away the lower edges and corners of brood combs, and later, when the cluster expands and covers these vacant spaces, they are filled in with drone comb.

It is this fact that led to the erroneous conclusion that bees, in their desire for drone comb, will deliberately tear down worker comb and replace it with drone comb.

That bees will store even new wax for future use was remarked by Quinby many years ago. In hiving bees in empty boxes he noticed that they dabbed small bunches of wax promiscuously over the top of the

box, but later, when the combs had been started, this wax was removed and used where needed.

No doubt we have sometimes attributed to incorrect spacing some of the burr comb which was only excess wax stored up by the bees for future use.

At any rate, it won't do to await the bees' necessities to get the top bars cleaned.

Directly in line with this is a statement by Dr. Zaiss in the Bee World (May), p. 226:

"Queenless stocks not infrequently build a queen-cell over a simple pollen-cell, and expect a queen to come out of it."

Now of course bees never expected any such thing, and this is a fine sample of the scientific slush we are treated to by pseudo-scientists in most foreign journals. The only way these writers keep bees must be to keep them at a safe distance.

These cells are never built around a pollen cell, as a queen cell is built around a larva, but is based upon the pollen cells and completely covers them up. I have never measured them carefully, but to my eye they do not appear to be quite the right size, depth or thickness for queen cells.

Anyone wanting to study these cells may get a supply by raising brood above an excluder and spacing the combs rather wide apart. Occasionally a crescent-shaped row of them will be built just along the upper edges of the brood.

I have always found them based upon **two** cells of pollen or two cells of capped brood—never on one; probably not room enough for the base. If you will watch these carefully during a slow honey-flow, you will find that they disappear about the time the honey is capped over.

You will come to the conclusion that G. M. Doolittle was correct in his statement that these cells are simply wax from cappings stored in this form by the bees. As the brood raised above the excluder emerges, it is not renewed by the queen, and, not much honey coming in the cappings are saved for future use.

Cells built in advance for the queen to lay in are **never** based on cells of brood or pollen, and no bee was ever guilty of thinking that this pollen would ever emerge as a queen.

Bees and Honey at State Fairs.

Gus Dittmer, superintendent of the department of bees and honey at the Wisconsin State Fair, advises us that a total of $1382 was paid in premiums in his department this season. The Minnesota State Fair, of which Prof. Francis Jager is superintendent of the apiary department, offered slightly higher totals, more than $1400 in premiums having been awarded in that state. There is constantly increasing support offered to the beekeepers by the various fairs, and it is important that creditable exhibits be placed.

TENNESSEE-BRED QUEENS

Fifty-one Years' Experience in Queen-Rearing
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	Nov. 1 to June 1			June 1 to July 1			July 1 to Nov. 1		
	1	6	12	1	6	12	1	6	12
Untested	$2 00	$ 8 50	$15 00	$1 50	$ 7 50	$13 50	$1 25	$ 6 50	$11 50
Select Untested	2 25	9 50	18 00	1 75	9 00	16 00	1 50	7 50	13 50
Tested	3 00	16 50	30 00	2 50	12 00	22 00	2 00	10 50	18 50
Select Tested	3 50	19 50	35 00	3 00	16 50	30 00	2 75	15 00	27 00

Select tested, for breeding, $7.50.

The very best queen, tested for breeding, $15.

Capacity of yard, 6,000. I sell no bees by the pound or nuclei, except with high-priced tested and breeding queens.

Queens for export will be carefully packed in long-distance cages, but safe delivery is not guaranteed.

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Plain shipping cases in all sizes, namely: 4x5, 3⅝x5x1½—all complete in flat, at $28.00 per 100.

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We also have a suppiy of 10-frame shallow extracting and section supers 15⅞ in. wide, which we are closing out at greatly reduced prices.

Let us quote you prices before placing your order.

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1924 PACKAGE BEES 1924

Yancey Hustlers. Three-Band Strain, Only

Our bees are building a reputation as honey-producers in every section of the country. If you are not satisfied with your present strain, order a few packages of the Yancey Hustlers, headed by our select young queens, and we will get your future business. Our motto, "Every Customer a Booster."

Safe arrival and satisfaction guaranteed on every package and queen shipped. We are now booking orders for spring delivery, and will be glad to send you prices and full particulars. No more orders booked than we can fill promptly on dates specified.

Caney Valley Apiaries, Bay City Texas

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The Miller Memorial Library

July 1, 1923, the total amount of subscriptions was $1,652.08. At that time $47.92 interest which had accrued, was addel to this, making a total of $1,700.00.

The following donations have since come in.

From Wisconsin:

Sheboyban County Beekeepers Association	$5.00
Grant County Beekeepers' Association	2.00
Northeast Wisconsin Beekeepers' Association	5.00
Marathon County Beekeepers' Association	3.00
E. Eveland, Barneveld. Wis.	1.00
Milwaukee County Beekeepers' Association	5.00
Rock County Beekeepers' Association	5.00
Jefferson County Beekeepers' Association	5.00
Baraboo Valley Beekeepers' Association	5.00
Andrew Stevens, Stockbridge	1.00
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A. E. Jaeger, Watertown	.50
Lynn Reynolds, Tomah	1.00
Kangaroo Court at the Chautauqua	49.23

From other States:

F. A. Snell, Milledgeville, Ill.	1.00
A. A. Augenstein, Dakota, Ill.	1.00
A Patron of the A. I. Root Co.	2.00
Miss Florence Naile, Columbus, Ohio	5.00
E. C. Davis, Baton Rouge, La.	5.00
J. C. Hutzleman, Ohio	1.00
C. P. Dadant—Funds remaining from funds given by members of the committee for memorial tablet	9.65
Pennsylvania State Beekeepers' Association	100.00
Chas Strauss, Mt. Joy, Pa.	1.00
Additional amount from Apis Club	25.70
	$246.08
Amount previously received	1700.00
Total	$1946.08

A BEEMAN WITH SALES NERVE

Honey has found many ways to sell itself, but the latest and most effective way has been tried and proven of value by an expert in this line.

After the trouble and expense of raising and caring for over 300 colonies in the country, he selected a nice shady spot along the road, at which place he erected a roadside stand. Near this he laid out a free camping ground with all modern conveniences.

Huge signs were erected along the road for several miles, pointing the way to tourists, to whom he sold the honey, both in comb and extracted form. Electric lights twinkled on and off to attract the night-time customers, while the sales to the campers, who had taken of his hospitality, more than paid for the plot of

ground and its upkeep. Odd signs of huge bees attracted no little attention and, at the back of the stand, he kept many hives.

Pails of honey were sold along with honey candy and honey ice cream which proved a great favorite with the public. Roadside advertising has proved so popular for this particular farmer that he has decided to move back his fence and clear off several more acres for the public camping grounds, which will mean more business, too. These campers purchase honey in its various forms from him and then take it with them, to be eaten later. His extracted honey sale has exceeded the comb sales, so he has regulated the production accordingly.

Luella B. Lyons.

WHAT ABOUT THIS?

An effort will be made to stop the bee industry in the orange-growing district near Lindsay, Cal., according to an editorial in the Lindsay Gazette, which says:

"Orange growers are becoming satisfied that the bees are a menace to the orange groves in many respects. One prominent grower says that he had better crops before the bees came in and that the oranges were sweeter. The general opinion is that the blossoms are weakened by the bees, then a most important point is the carrying of scale. Orchards fumigated by the same crews with like materials are found to be much more quickly infested if bees are near. Often, too, horses become frightened and run away because of a swarm of bees. The orchard people have tolerated the bees for many years because they thought there was no harm to the orchards, but now that evil results are appearing there will be a concerted effort to stop it. Orange honey is a fine product, but it must not be at the price of orange crops. A petition will be sent to the supervisors in the very near future to stop the traffic in bees in this district, and undoubtedly growers will sign it unanimously."

(This is an interesting bit of news. If the honeybees are driven out there will still be the wild bees and other insects flying about the trees. How will they get rid of the wild bees? If all the insects are kept out of the orange orchards, how will they secure proper cross pollination of the fruit?

In an old publication there is reported an incident of early California history where the fruit growers of a certain valley secured an ordinance to compel the beekeepers to remove their bees. According to this report, these same fruit growers later asked for the repeal of the ordinance and offered to pay the beekeepers to return. There is an old saying that history repeats itself.)

THE HONEY BAZAAR THAT SOLVED HIS CONSUMPTION WORRIES

A little Ohio town had a live wire beeman and he proved that fact. Times, it seemed had been hard and the consumption of the honey he had for sale looked rather doubtful. His wife belonged to the Ladies' Aid Society of one of the leading churches and one day she came home to him with some of the troubles of the Aid. She stated the fact that the Aid wanted to give some function to bring some money into the treasury. They were at a loss as to what to have for they had had chicken dinners and every kind of a social imaginable.

The next day, after a great deal of figuring, her husband made the Ladies' Aid a proposition. He would sell them honey at a small margin if they would hold a "Honey Bazaar." This was the plan he offered: honey short cakes, honey cakes, honey ice cream, honey candy, honey pies, honey sandwiches, bread and honey, Parker House rolls and honey and many such could be made up and sold. The women that purchased the honey from him should have a discount, in making up these things to sell. Then have guessing contests and give prizes, cakes or jars of honey, and to the country person guessing correctly some contest, they should give a swarm of real bees. Many more minor details he planned for them and developed as they went about it.

The ladies grasped the opportunity at once and the bazaar lasted two days. Crowds swarmed that church basement from noon, when the doors were opened, until the doors were closed at night at 10:30. More honey was consumed and purchased those two days than any heard-of affair before. A few lines were added, such as coffee, tea and cocoa were served, and tea table covers, luncheon covers were sold.

The Ladies' Aid realized about five hundred dollars on the first day and the second day's receipts and the auction which was held on the evening of the closing day, netted them about seven hundred dollars. The ladies of the organization feel they are debtors to the beeman who so kindly helped plan the affair for them and made it possible. They did not know it would succeed, but they were willing to take a chance.

Luella B. Lyons.

Honey Producers' League

Secretary Fracker has announced January 24 and 25 as the dates for the meeting of the Honey Producers' League at the Great Northern Hotel in Chicago. It is not too soon to make plans to attend.

Reese Ohio Inspector

C. A. Reese, formerly a deputy inspector in Iowa and later in beekeeping work in West Virginia and Florida, has been appointed acting inspector of apiaries for the state of Ohio.

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Additional frames of brood, or additional pounds of field bees to make larger package, $1,00 each, respectively, in above packages. Bees and queens, Italians. Special discounts given to schools, colleges and church organizations. Queen introduced and laying enroute to you. Health certificate attached. Safe arrival and satisfaction guaranteed. One-fifth cash books order. Send for circular and names of satisfied customers in your state. Complete references given.

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1 Yr. 75c 2 YEARS $1 5 Yrs. $2
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2-frame standard Langstroth, with queen 3.00
3-frame Standard Langstroth, with queen 3.50
2-frame Jumbo Langstroth, with queen 3.50
3-frame Jumbo Langstroth 4.00

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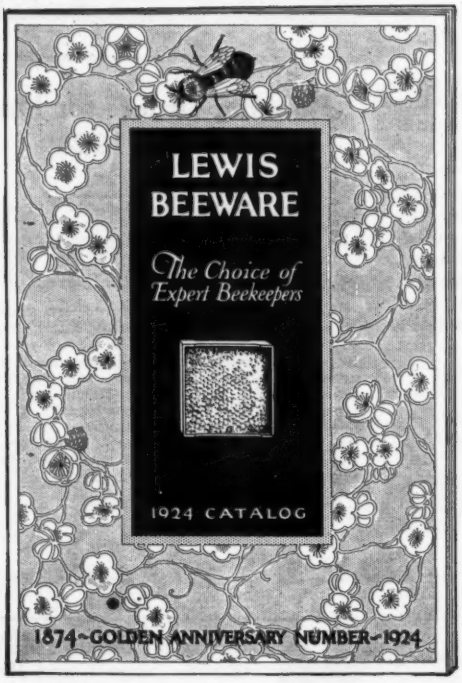

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Do you keep bees for pleasure? This catalog features the latest improvements, conveniences and time savers required to simplify bee keeping and make a success of spare time bee culture.

Among its features — 1,000 Better Beekeepers Club; bargains for 500 new Beeware users; full details of the Golden Anniversary Prize offer.

Sent free on request, provided you indicate the number of bee colonies you have or plan for 1924.

"Eat More Bread and Honey"

TO MARK the 50th Anniversary of the G. B. Lewis Company, we have decided to offer these 28 cash prizes for help in solving what we believe to be the beekeeper's chief problem.

For 50 years this company has given its best to the progress of beekeeping, helping to develop honey production from almost nothing into a many million dollar industry. Future opportunity for profit in beekeeping far exceeds anything in the past, and its chief problem, we believe, is the intelligent marketing of honey, under plans that will stabilize prices and markets, teach the public the many values of honey as a food and so multiply the demand, as has so successfully been done for other food products.

We therefore offer these cash prizes aggregating $275 for the best 28 stories or papers dealing with the subject of honey selling. If you have worked out a plan for marketing your crop profitably and increasing the use of your honey year by year in your locality, your story stands an excellent chance of winning one of these prizes. If you have an important suggestion or practical plan to help develop the sectional or national market and appetite for honey, write on this subject and your paper will be entered. In other words, you can write either on the development of a local market, a market in a large district or the national market.

The more simply and clearly you tell your story, the better your chance is. Photographs or other exhibits will help you. Be practical, be specific, tell "how." Restrict your story to 1,000 words and mail it with a postmark not later than April 30, 1924, addressed as below.

For full details as to judges, awards, etc., write at once stating how many bee colonies you will have for 1924 or indicating your connection with or interest in honey marketing.

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AMERICAN BEE JOURNAL

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THE HONEY RESOURCES OF NEW JERSEY

By Elmer G. Carr.

NEW JERSEY has been dubbed the Garden State, and this title no doubt conveys to many minds an impression that agricultural projects are conducted on a diminutive scale. In this connection it should be remembered that this little state has one overhead irrigation project covering 300 acres and that there is one orchard project of 1000 acres of fruit trees in one plot.

It will be admitted that this has nothing in particular to do with honey production, although within a very few years the thousand-acre orchard will need hundreds of colonies of bees to insure profitable crops of fruit.

However, it is hoped these statements have prepared the mind of the reader to accept the statement that New Jersey has greater opportunities for profitable honey production, when her area is considered, than any other state. When it is also considered that at present New Jersey has absolutely no honey marketing problem, it is readily seen that conditions are favorable for the honey producer.

There is on file in the Department of Agriculture a list of three thousand names of persons in the state who keep bees. This includes the person with half a dozen colonies as well as those with larger holdings.

From inspection records and statistics it is estimated that there are approximately thirty thousand colonies of bees in the state. The local demand for honey is such that the greater part of the production of these colonies is consumed within a very few miles of the point of production. More than this, tons of honey are brought into the state for home use.

Topography

Although its area is comparatively small, New Jersey has a wide range of soil conditions which provides conditions favoring a great variety of nectar secreting plants.

The northern part of the state is hilly and rocky, with ranges of hills running regularly northeast and southwest, with intervening valleys.

The central third is rather flat, while the southern third or more is flat, with sandy soil, in many parts very sandy.

These three zones, differing in topography, are also as widely different in their floral offerings.

Agriculture

The hand of man is largely responsible for the nectar-bearing plants of New Jersey. Not that man has always intentionally introduced plants which are of value to the beekeeper, but it is upon what man has or has not done to the soil that the abundance of nectar-secreting plants largely depends.

Probably because of the close proximity of good markets for milk, New York and Philadelphia, dairying engages a large part of the time of a goodly number of New Jersey farmers. This results in increased plantings of alsike clover, since this plant is of high value to the dairyman.

Although there is much limestone in the northern part of the state, none of this supply is being utilized and on the whole but little lime is being used, with the result that most of the soil is too acid to favor the growth of red clover; therefore alsike is grown.

Honey Regions

Roughly, the state may be divided into three zones in relation to the honey flows—the northern third, which normally is favored with a summer flow from clovers and a fall flow from buckwheat, goldenrod and asters. The central zone is not so well defined, although for the larger part there is only one dependable flow, which comes from the fall blossoming plants, such as goldenrod and asters, and the southern half of the state, which is more strictly a clover location, where the principal dependence for surplus nectar is alsike clover.

An apiary in the sumac, sweet clover district of New Jersey.

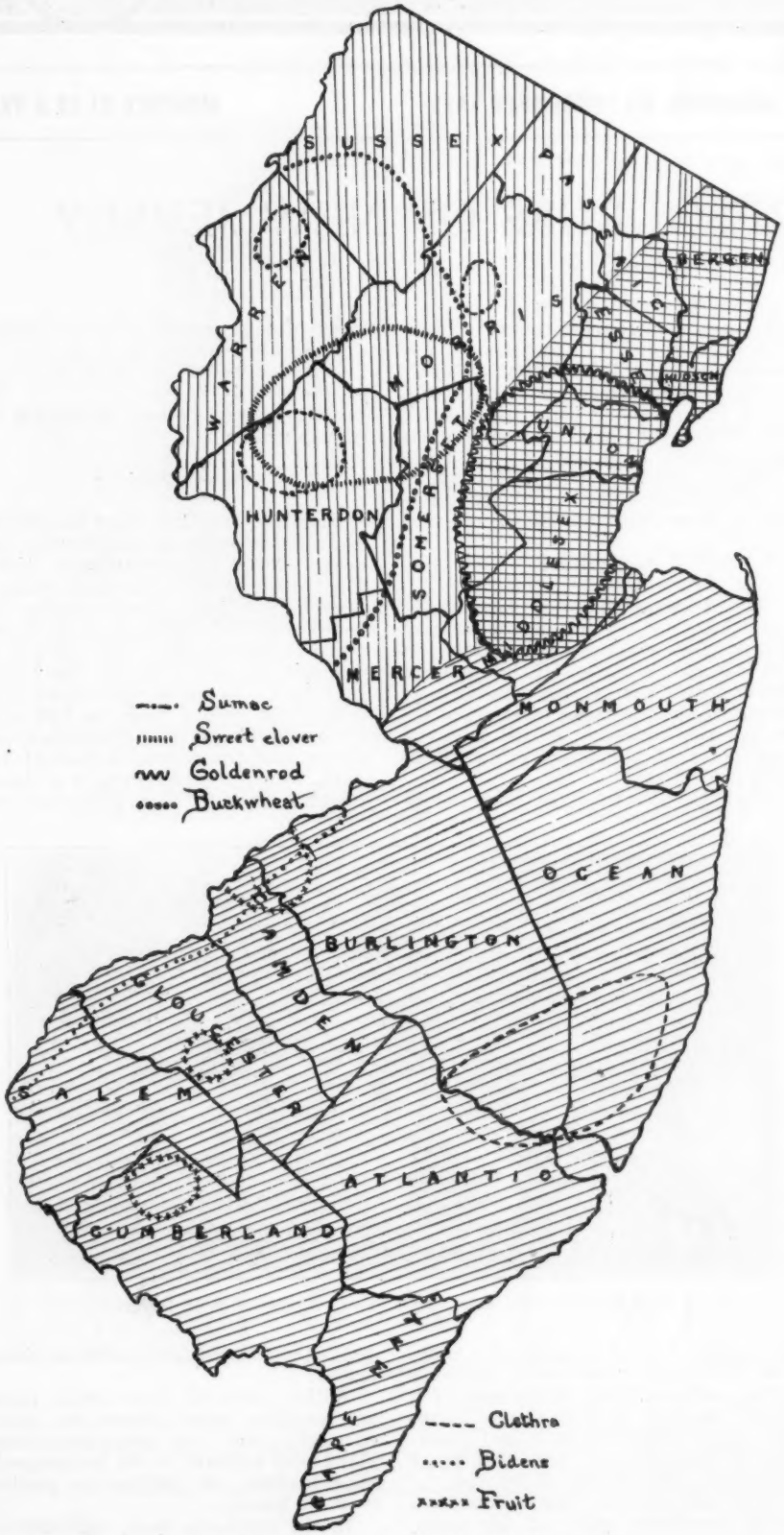
Within each of these areas there are smaller areas where the presence of some one nectar-secreting plant adds another to the beekeeper's opportunities of getting a paying crop of honey.

In the northern zone, agriculture,

particularly in the more rocky locations, is languishing and three varieties of sumac are gradually occupying the stone fence rows and creeping out into the hillside fields.

Should conditions change so that the farmer can compete with the factories for manual labor, this source of nectar may be cut off, but nothing at this time indicates that such a change may occur.

Another important nectar producer in this northern region is buckwheat. This plant seems to be at home in the hills and in seasons when weather conditions favor the preparation of the soil for this crop, a good nectar flow from this source may be expected.



Map showing the honey plant regions of New Jersey.

A third plant of value to the beekeeper in this region is sweet clover, both white and yellow. This seems for the most part to have been inadvertently introduced, many times as an adulterant in alfalfa seed. However farmers, particularly live stock growers, are learning to appreciate the value of this plant on the farm and, under the influence of the State Agricultural Experiment Station, considerable sweet clover is being sown. From the present indications this plant will steadily increase in importance to the beekeeper, not alone in the northern zone but throughout the state.

Before closing the discussion of this northern zone it might be stated that since the elevation is several hundred feet and it is somewhat removed from the influence of the ocean breezes, more snow falls, and it lies on the ground longer in this region, giving both moisture and winter protection to the plants.

Nectar-Producing Plants

There is such a variety of major nectar-producing plants in the northern zone that there is scarcely a time from June first until frost that the bees do not get more than a living.

In the spring there is a considerable range of plants to produce nectar and pollen for brood rearing. These include the maples, elms, dandelion and fruit blossoms. As surplus nectar-producers there are the white Dutch clover, alsike clover, white and yellow sweet clover, sumac, buckwheat, goldenrod and asters. Some claim is made for basswood as a producer of surplus nectar in this region, but this claim is not well supported. When this long list is considered it is readily seen that should one or more of these plants fail to yield there is still an opportunity to get a paying crop. Even under the all too common practice of poor wintering and uncontrolled swarming, good crops are secured.

From the central zone, buckwheat and sumac are, for the most part, missing, and there seems to be less "pep" in the way the plants produce nectar. There is also in this zone what has been called the suburban region. This embraces the area within a radius of 25 miles of New York City. This area is sometimes called the dormitory of New York City. There is comparatively little farming done, the little activity in that line being vegetable gardening, which is not of interest to the honey producer. However, much of the land in this area is lying idle pending the time when it shall be used for building purposes and, each year, is being covered more densely with goldenrods and asters. The goldenrod commences producing nectar about September first and, barring unfavorable weather, the beekeeper is assured of a yield of 100 pounds or more, if his colonies are in anything like decent condition.

The asters start blooming about the middle of the goldenrod flow and

continue until they have matured or have been killed by a "black" frost.

These flows come so late in the season that, even if the colonies have wintered ever so poorly, there is enough time to build them up for the flow. If, on the other hand, the beekeeper will do the right thing for his bees and bring them through the winter properly 200 per cent increase may be made and all get a full crop.

In the central zone there are some restricted areas where heartsease **(Polygonum pennsylvanicum)** is a fairly dependable source of surplus honey of excellent quality.

The southern half of the state, with the exception of a few restricted areas gives but one main dependence for surplus, which is alsike clover. When the beekeeper does his part well the crops from this plant are by no means discouraging.

It should not be understood that alsike ends the season, so far as gathering is concerned as, with few exceptions, the bees, even in this region, secure enough for their winter maintenance from late summer and fall blossoming plants.

Unfortunately for big stories of large yields of honey in the northern region, no real effort has been made to secure maximum yields. In the central and southern zones there are authentic records of 250 pounds of extracted honey from a single colony and of 240 sections of comb honey from one colony.

In the two latter named regions there are extensive cedar swamps in which abound sweet pepper bush **(Cletha alnifolia)** and blueberries **(Vaccinum spp.)** which frequently yield considerable surplus nectar. There is also a restricted area where ever-bearing raspberries are grown on an extensive scale and these, with the blueberries, enabled one beekeeper to secure the 240 section yield previously mentioned.

Along the lower reaches of the Delaware River there is a considerable area covered with Spanish needles **(Bidens spp.)**, which usually furnish abundantly a golden honey of rather pleasing flavor.

It is also in this region that the extensive fruit growing projects are located. These are not of importance to the honey producer as sources of profitable nectar, but each year there is a greater tendency for the fruit growers to rent bees for use in the orchards for pollination purposes. This is a source of some revenue to the beekeepers, although when the labor and the risk incident to moving is considered and the possibility of the bees being poisoned by sprays and dusts, also the possibility of the bees finding American foulbrood in this area is taken into account, beekeepers show little enthusiasm over the matter.

TOO MUCH SPREAD

By A. F. Mead.

In the article on the spread of honey prices by E. G. Le Stourgeon in the October American Bee Journal he makes it plain that it is the duty of the beekeeper to sell his 20-cent honey to the wholesaler at 10 cents. He says: "Beekeepers often complain that the 'spread' between the price the producer receives and the price paid by the consumer is too great. It is time he should cease complaining of this spread." * * * "We must forget to watch this spread except for the purpose of respecting and protecting it."

If he lives at such a distance from market that he is obliged to ship his crop to sell to the wholesaler and has no retail market, it is quite reasonable for him to ask us to help him out by refusing to sell at a retail price; but to those of us who live in a thickly settled territory where there are numerous cities and villages I believe there is another side. We sell our crops of honey with very little trouble at a good price, the most of it being sold right at home. The retail stores handle a very small proportion of the honey produced. It is the same with potatoes and fruit. Consumers drive out to the farms and buy their supplies direct. It seems to be the best way out for the producer. If we were obliged to depend upon the retailer to handle our produce, including honey, a large proportion would be left on our hands. Take, for example, our apples. The farmer goes to the city with a load and his grocer will perhaps buy two bushels at $1.00 a bushel and sell them out to customers at 5 cents a pound, or $2.50 a bushel. One dollar is a fair price and the farmer is satisfied. Probably his next customer is a consumer who wants ten bushels for his own use. Now, according to Mr. Le Stourgeon, the farmer should insist upon the consumer paying the unreasonable price of $2.50 a bushel to protect the grocer. Will he do it? I guess not. He will make the sale at $1.00 and dispose of his load.

The grocers in my home market are selling five-ounce glasses of honey at 15 cents. Is it my duty to charge consumers 48 cents a pound to protect the grocers? I think it would take me some time to dispose of my crop.

Mr. Le Stourgeon asks us as producers to stick together and sell our 20-cent honey for 10 cents in order to protect the wholesaler, jobber and retailer. I believe it would be far better for all concerned to ask us to co-operate in an effort to get the producer and consumer a little nearer together. They may not be able to do it in Texas, but in the North we are doing it, and I believe will continue to dispose of our honey at a reasonable price.

If we all lived a long distance from a market we might be obliged to make use of one-half of our honey to pay the expense of selling the other half, but as the great majority of us live near a market I do not believe we are under any obligation to sell our 20-cent honey at 10 cents to protect the wholesaler, nor at 14 cents to protect the retailer, in order to give the retailer a chance to sell at 20 cents and make a profit of 6 cents.

A northern New Jersey Apiary.

Associated Organizations of Iowa

Secretary Herrick, of the Iowa Horticultural Society, announces that all associated organizations will hold their meetings at the same time at the Savery Hotel in Des Moines on December 5 and 6.

There will be a joint session of all these associations, including the Iowa Horticultural Society, the Beekeepers' Association, the Vegetable Growers and Iowa Fruit Growers' Association on the morning of December 6. The remainder of the two days will be taken up with separate programs of the various organizations.

Displays will be made by visiting members on mezzanine floor, outside the rooms where meetings are to be held. This will be the 58th annual meeting of the Horticultural Society and the 11th for the beekeepers.

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THE EDITOR'S VIEWPOINTS

LARVA OF "MELOE CAVENSIS," A BEE PARASITE

The International Review of Agriculture, published in Rome, contains, in its July-September number, a mention of the above coleopter, a parasite of the honeybee, in Cyrenaica, better known as Barka, Eastern Tripoli, in northern Africa.

"The larvæ, hidden in the flowers, attack the bees and cause their subsequent death. The injured bee returns to the hive and the deleterious effect on the swarm is evident. Naphthalene, sprinkled on the floor, acts only as a palliative."—(V. Zanon, L'Agricoltura Coloniale, Florence, 1922.)

ANOTHER SUGGESTION AS CAUSE OF MAY DISEASE

"A beekeeper at Bettlach, Solothurn, Switzerland, noticed that May disease made its appearance among his bees, and in his neighbors' apiaries, in years when **Caltha palustris**, the marsh marigold, flowered before the cherry trees. He therefore carried out the following experiment in the spring of 1921, in which season the above named conditions were found: All the swarms except two were kept in the apiary (house apiary) until the cherry trees were in blossom; the two swarms that were at liberty contracted the disease, as did all the bees of the neighboring owners, but the swarms shut up in the apiary were immune. The bees attacked or killed by the May disease, together with some flowers of **Caltha palustris**, were forwarded for examination to the Bacteriological Institute at Liebefeld, Berne. It was found that the bees had not been infested by any parasite, but that their intestines contained a large amount of **C. palustris** pollen."—(Schweizerische Bienenzeitung, 1923, quoted by International Review).

In each country where the May disease is found, they ascribe it to the pollen of a certain plant or bush. But we have known it to exist at the same time in the apiaries of Mr. Poppleton, in Florida, and those of Major Merriam, in Southern California, and in each case certain pollen, not the same, was charged as the cause. This May disease has exactly the same symptoms as what we know under the name of "paralysis," which does occasional damage in spring in our Northern and Middle States. It has been suggested that some sort of mouldy pollen is the cause of it.

"EAT MORE BREAD AND HONEY"

In connection with the "Eat More Bread" campaign which has recently been pushed by the bakers of the country, the G. B. Lewis Company of Watertown, Wis., has put in a word for the beekeeper. The Lewis Company, in addition to their well-known line of Beeware, are the manufacturers of bread boxes which are widely used for shipping bread. In their advertising which appears in the bakers' trade journals they are using the slogan "Eat More Bread and Honey." This should have a particular appeal to this line of trade and it is probable that many of the bakers will add the honey to the appeal to eat more bread. Sometimes a simple slogan like this will prove more effective than more extensive descriptive advertising would do.

This is a happy thought on the part of the Beeware people and we wish them well in their advertising campaign among the bakers.

MAILING QUEENS

Mr. W. L. Wilson, of Ottawa, Canada, applauds the suggestion made by the editor, on page 46 of the September number, of trying again the old method of shipping queens in boxes provided with comb, so they may have better handling and suffer less. Some method ought to be devised to retain the quality of first-class laying queens. In fact we should have no other queens than first-class ones, in our hives.

MERRY CHRISTMAS

We extend to all the readers of the American Bee Journal the greetings of the seeason. We sincerely wish each and every one a very merry Christmas and a happy New Year. 1923 has brought the usual measure of joys and of sorrows, and we all look forward hopefully to 1924.

At this time the editors are reminded of the hundreds of friendly letters which have come from reaeders in all parts of the world during the past year. These letters have given us more pleasure than you may realize. Every day the business office calls our attention to a few lines of friendly greeting sent with a remittance for subscription or an order for advertising. These friendly letters furnish the greatest measure of compensation for our efforts.

May 1924 bring a bountiful harvest, a full measure of prosperity, more joy and less sorrow to our readers than any year that has passed, is the wish of the publishers to all our readers.

NOTED MEN AS BEEKEEPERS

We read in "Le Soir" concerning the meeting of Baldwin and Poincare (pronounced Poincary) at the meeting in the Ambassador's quarters in Paris: You perhaps imagine that it was a dinner of serious men, conversing soberly. Not at all! The conversation was delightful. They did not talk of fashions, since they were all men, but they talked of **beekeeping**. Mr. Baldwin exhibited some marks of stings which he suffered when disturbing a swarm, near Aix.

It was found that Mr. Poincare also raised bees in the Meuse. All they lacked was the presence of the author of the "Life of the Bee" to settle some technical points. —(L'Abeille, of Huy, Belgium).

VENOMOUS ANIMALS AND VENOMS
(Animaux Venimeux Et Venins)

This is a work of some 1600 pages, large octavo, two volumes, with 521 figures and 17 plates, by Mrs. Dr. Marie Phisalix, widow of Dr. Cesaire Phisalix, who was noted for his studies upon animals and insects. The work is exhaustive and contains a description of the stings of insects, including the hymenopters. It also treats of the venomous protozoa, worms, crustacea, spiders, fishes, toads, lizards, snakes, &c.

Referring to the sting of the bee and other hymenopters, Mrs. Phisalix calls attention to the fact, too often overlooked by us, and first studied by Carlet, that a secondary poison gland, besides the main poison gland, produces poison; this secondary gland, much smaller

than the other, is called "the alkali gland," while the main poison gland is the "acid gland". Snodgrass, who also described it, mentioned Carlet's experiments.

The work is in the French language, published in Paris, and costs 120 francs, postage extra. It is bound in boards. If any of our scientific readers should desire to secure it, we can supply it at present at a cost of about $10.

MISS EMMA WILSON

The constant subscribers of the American Bee Journal will remember Miss Emma Wilson, who was editor of the "Beekeeping For Women" in the American Bee Journal previous to 1920. Miss Wilson lost an eye a few years ago and we are informed by Mrs. C. C. Miller, her sister, that Miss Wilson is now threatened with the possible loss of the other eye.

Mrs. Miller writes:

"She has been through a rather severe experience. She was taken with pain and inflammation in her eye (the good one), and we took her to the specialist who had operated on the cataract. He sent her to the hospital, at Elgin. She was totally blind when we took her there and has been so almost all the time since. She has suffered intensely, but has been very brave, never making a whimper. For the last week she has been improving, and the last time I was to see her, a few days ago, she could see me, so that she could tell who I was. So we are sure the vision is coming back, at least to some extent. Whether she will ever be able to read is a question. I called the doctor by telephone today and he said that perhaps I could bring her home the first of the week."

As Miss Emma Wilson was the right hand of Dr. Miller, whose sister-in-law she was, both she and Mrs. Miller are an integral part of the bee fraternity. So our beekeepers will be anxious to know how she is faring. Meanwhile, we believe we are representing the entire fraternity when we say that all wish her full return to health and eyesight.

USES OF BEESWAX

The question comes to us: What can they make out of beeswax? They can make candles, floor wax, encaustic paint, sealing wax, moulding wax for sculpture, wax flowers, wax fruits, and all sorts of models, engravers' wax for making cuts, patterns, &c., gilding wax for putting on gold paint, polishing wax, shoeblacking wax, which does not burn leather, wax coating for the cloth used in making feather pillows and feather beds.

The Catholic churches are supposed to use entirely pure beeswax candles, but judging from the statement made by a candle maker in southern France, they use about half and half paraffine and beeswax.

To my knowledge, the Mississippi River steamboats use quite a great deal of wax as a lubricant on machinery which is likely to get overheated, wax being slower to get hot than the oils.

"Waxcraft", published by Thomas W. Cowan, a number of years ago, contains 110 recipes for painting, polishing, engraving, modeling, varnishing, lithographing, cementing, sealing, water-proofing, shoe and harness blacking, anti-rust preparations, medicinal preparations, ointments, plasters, salves, cosmetics, cold cream, shaving paste, pomade, &c., all made in part out of beeswax. All this is apart from the greatest use made of beeswax at present, comb foundation, to return their own product to the honeybees.

WINTERING—TOO MUCH SOLICITUDE

Some of our well-meaning beekeepers endanger their bees by too much solicitude. After placing them in winter quarters, sheltering them thoroughly, feeding them what is needed, they examine them from time to time to ascertain whether they are doing well. An old, experienced beekeeper will have more self-reliance, and, after doing what he thinks is needed, will leave them alone. This is the proper thing to do. Every time that we examine the hive, especially in cold weather, the bees are disturbed, some of them leave the cluster, to investigate the intrusion; often those bees get chilled and die before they can return to the group.

We cannot urge our beekeepers too much, to let the bees alone, after they have done what they think is necessary for their welfare; and this care should be given before the beginning of cold weather. Not only do the bees bestir themselves uselessly and run the risk of getting too far from the cluster to be able to return to it, but the entire cluster is aroused and more stores are consumed than if they were quiet, with the result that there will be more suffering from retained excrements, if the food is not of the very best. The greatest danger to bees in winter comes from unhealthy food consumed in too great a quantity, at times when they cannot discharge their feces.

For the above reason, we are opposed to keeping several hives on the same stand, if it is at all necessary to examine any of them during the cold days. A hive is disturbed and made uneasy, if another hive on the same floor is disturbed, for bees will notice shocks which would be almost unknown to us. Not only does this apply in cold weather, but in warm days as well. When my father kept his first eight or ten hives, aligned on the same floor, he noticed that the disturbing of one brought out the bees to the front of every other colony on that floor board. Therefore, early in his experience, he insisted upon insulating every colony on a separate stand. If we must have several hives on one stand or in one wintering case, let us not examine any of them unless we are willing to disturb them all.

It is the same with bees in the cellar. We practiced cellar wintering for 18 years, and then quit it because so many of our winters were mild and we disliked to see the cellar bees restless while the outside bees were having a good flight. Taking them out, because of a mild spell, and putting them in again, only spelled disaster, for they began to breed and were still more restless than if they had remained in confinement. If the bees have good, clean food, not too much loaded with pollen, no honeydew, no fruit juices, they can stand a number of months in confinement. I remember Mr. Verret, of Charlesbourg, Quebec, exhibiting to me his diary, which showed that, during a protracted winter, he kept his bees in for 186 days, a trifle over 6 months, without perceptible loss. His bees were in the cellar then, and I visited it with him. It was under his house, and the bees were almost as quiet as death, or to put it as an Indian said: "You could hear the silence."

Bees in the cellar must be kept even more quiet than those out-of-doors. But Mr. Dadant senior used to go regularly, about twice a month, to ascertain the temperature, which must be between 42 and 48 degrees. But as thermometers differ, and cellars as well, find out what temperature your bees are quietest and keep it at that point.

Feeding bees in the cellar may be done, if absolutely indispensable, by placing a block of sugar candy right over the cluster, on top of the frames. I remember, when I was about 15 years old, my father buying a colony in a box hive, which was almost entirely destitute, turning it bottom side up in the cellar and putting about 5 pounds of sugar candy, right over the end of the combs, in a cake. Whenever we went to examine them with a candle, we would see them clustered over that candy. They wintered safely and were helped with syrup in the spring after they were taken out of the cellar. The quantity of sugar needed for a colony in the cellar is astonishingly small.

We say that the bees wintered out-of-doors must not be disturbed, in winter. But when the weather gets warm, for a few hours, they ought to be made to take flight and discharge their excrements. It will give them a new lease on life, for another cold spell.

HONEY FOR AUTO RADIATORS

SOME TRIALS WITH HONEY

We did not have it really cold enough here last year for a test until the night of January 6, when the thermometer dropped to 16 degrees below zero. A pail or two of honey to one of water stood the test beautifully. How much more it would have stood I would like to know. Now for the circulation test. This I managed by allowing the liquid to stand in a pail in a snow-bank over night, after which it was poured into my Ford radiator and driven a mile and a half on high speed, then back the mile and a half, the whole way on low speed. There was quite a stiff breeze facing one way, but not zero weather; I should judge about 15 degrees Fahr. At the finish the radiator was nearly as warm at the bottom as at the top, and one could rest the hand anywhere on it. It would appear that this mixture has a much higher boiling point than water has, making it a better cooler. Our local garage man, who was a bit skeptical, owing to his experience with a thinner mixture freezing up and boiling over (a dirty, sticky mess), went along with me, and will make an affidavit if I wish it.

A half and half mixture cannot be depended on when the thermometer goes below 15 degrees Fahr. Of course, the quality of honey, with reference to moisture, particularly buckwheat honey, varies considerably, and it would seem the best plan to advise only a two to one mixture for climates where the thermometer goes to near zero. It is suggested that too much water be put in the mixture and then brought to the proper consistency by boiling. Now, how would a person know when to stop boiling without a graduated container or a specific gravity test? I do not think either method would be practical in the garages. However, I have satisfied myself that a much more thorough mixture is obtained by having both liquids hot when about to be mixed. As for the foul-brood germs, the Fords should look after them. My mixture was obtained by bulk, not weight.

The mixtures I supplied for cars here until New Year's were half honey and half water. They all froze up; my own was solid. And yet not one of the radiators has developed a leak. This would indicate that the mixture has not the expanding force that water alone can exert.

Another point that I have noticed is that where this anti-freeze solution has become low in the radiator through leakage or the boiling away of the water, it is not practicable to add water to the solution while in the radiator, if that remaining solution has become very cold, without first heating it. Why? Because the water being at the top and over the hot part of the engine, and being easier boiled than honey, will pass away in steam before the circulation has affected a mixing of the two liquids. I have not used a car with a pumping system, and so cannot say how it will act in a case where cold water was poured in on top of the radiator partly filled with cold honey.

Some interesting facts could be obtained by further experiments, such as: (1) How long is it safe to leave a two to one mixture in a radiator in zero weather without running the engine to prevent granulation? (2) What is the freezing point of the solution? (3) The expanding force compared to water in terms of energy? (4) Would a thinner mixture be of benefit during the summer season owing to its cooling qualities and slowness of changing temperature? (5) The possibility of water getting low, allowing the honey to scorch and then the burnt particles washing into and clogging up the tubes?

R. A. F., Moorefield, Ontario.

HONEY AS AN ANTI-FREEZE MIXTURE

As the value of honey as an anti-freeze mixture for the radiators of automobiles is being given serious consideration, tests were made at the Central Experimental Farm, Ottawa, to find out what was the best mixture to stand the low temperatures experienced in Canada.

During the night of December 15, five different mixtures in one-pound glass containers were subjected to an outside temperature of 2 degrees below zero, and the following results were noted:

One-fourth honey to three-fourths water at 2 degrees below zero froze solid.

One-third honey to two-thirds water at 2 degrees below zero congealed, but permitted the passage of a corn-broom straw.

One-half honey to one-half water at 2 degrees below zero thickened, but did not congeal.

Again, during the night of December 18, three different mixtures were tested by a temperature of 11 degrees below zero:

One-third honey to two-thirds water at 11 degrees below zero froze solid.

One-half honey to one-half water at 11 degrees below zero congealed, but permitted the passage of a straw through it.

Two-thirds honey to one-third water at 11 degrees below zero thickened, but did not congeal.

On January 10, six containers, containing three different mixtures, half of which were mixed cold, the other half being incorporated by boiling for two or three minutes, were subjected to a temperature of 10 degrees below zero:

One-half honey to one-half water at 10 degrees below zero congealed, but permitted the passage of a straw.

One-half honey to one-half water boiled at 10 degrees below zero congealed to a lesser degree than the unboiled.

Two-thirds honey to one-third water at 10 degrees below zero thickened only.

Two-thirds honey to one-third water boiled at 10 degrees below zero thickened to a lesser degree than the unboiled; ran freely from the straw then dripped.

During the night of January 16, temperature dropped to 16 degrees below zero and the last mixtures were still outdoors. The following results were noted:

One-half honey to one-half water at 16 degrees below zero congealed, but permitted passage of straw.

One-half honey to one-half water boiled, at 16 degrees below zero, congealed, but permitted passage of straw.

Two-thirds honey to one-third water at 16 degrees below zero thickened to lesser degree than three-fourths mixture.

Two-thirds honey to one-third water boiled, at 16 degrees below zero, had about one inch congealed on surface (might have been separation). Below was very watery and free mixture.

Three-fourths honey and one-fourth water at 16 degrees below zero, thickened more than same Jan. 10 mixture.

Three- fourths honey and one-fourth water boiled, at 16 degrees below zero, thickened more than same Jan. 10 mixture.

As shown by the two latter table of results, the two-thirds honey to one-third water boiled mixture proved the best; it ran freely from straw and then dripped at a temperature of 10 degrees and 16 degrees below zero. Also, the boiled mixtures in every case seemed less affected by the cold.

White clover honey was used.

THE BEST ANTI-FREEZE SOLUTION

By May L. Bauchle.

H. F. Wilson, secretary for the Wisconsin Beekeepers' Association, is responsible for the statement that many car owners in northern Wisconsin had no trouble at all with their radiators last winter. The coldest days—and Wisconsin can be cold, very cold—the autoists tripped merrily along, and with no violation of the liquor law, either.

Honey Farmers Reaping Harvest

All over this northern woods and lakes country tourists have seen an increasing number of "Honey For Sale" signs. While they have been paying a liberal price for the cream of the product, the provident farmers have been carefully hoarding the green and imperfect honey to feed

the radiator in winter. No one knows to whom the credit of the discovery should go, so no name will be preserved in history as the first to substitute honey for alcohol. Perhaps the first experiment was an emergency.

Tests Are Made

Apiarists are busy making tests, but most of them are using and advising the use of one-half water and one-half honey. It has been found that this mixture will not freeze at zero Fahrenheit, which is 32 degrees below the freezing point of water. A very small amount of honey will keep the radiator from freezing in all ordinary weather. These mixtures have been tried out in the open air as well as in the radiators. The addition of small amounts of alcohol is being used in some of the tests to determine just how near the North Pole the motorist may venture without a frozen radiator. Exact accounts of the amount of honey used are also being kept, so that when "Auto Honey" is put on the market the advertising man may have a good backing.

Cheaper Than Alcohol.

Every time the engine is started some of the alcohol in the radiator evaporates. This necessitates constant watching and replenishing. Not so with the honey. Heat has no such action on it, and it has been proved that ten pounds will run an ordinary car through the winter. Motorists vary as to the amount of alcohol used during the winter, but the price runs many times that of honey. From four to ten gallons at 60 cents a gallon for alcohol is the average used. In the spring the honey may be drained from the radiator as easily as water, and has harmed it not at all. If the plans of the Wisconsin "Honey Farmers" materialize, "Auto-Honey" will soon be in universal use as an anti-freeze remedy.

HONEY IN AUTO RADIATOR

I have been experimenting with honey solution in my auto radiator and have found it entirely satisfactory. May I say, however, that even a 50 per cent solution will congeal when the mercury drops to 10 below, but I am sure that while this is true it will not expand to injure the radiator at a temperature 20 degrees below, and while the first cost is more than with alcohol, when one uses his car every day and does much driving the latter is by far the more expensive; and then one never knows the strength of the alcohol solution except by making a test every two or three days, and by drawing the honey solution out after the danger from freezing in the spring it can be used again at the approach of freezing weather in the fall.

B. T. Bleasdale, Iowa.

HONEY ANTI-FREEZE SOLUTION

I have tried this solution in a Ford through the cold weather, and found it very satisfactory: First, I mixed up a pail of part honey and part water, heating same so it would thoroughly mix, and set the pail out in the yard when the weather was 5 below zero, and it didn't freeze, and I had it sitting around the garage for a long time, and then I filled the radiator. Most of the Ford radiators are tubular. I don't know how it would work in a honey-comb radiator, as the honey-comb has finer circulating parts.

I have spoken to many people about it, and they seem to be favorably impressed, and many have agreed to try it. If brought into general use in radiators it would create the greatest avenue ever yet opened up for the use of honey, and especially the inferior grades, as the anti-freeze properties would be just the same in those honeys as it would be in the clovers. I have run across one person so far that knew honey could be used in a radiator. I know from all accounts alcohol is not a satisfactory solution.

Ben Crawford, Chicago.

HE LIKES THE BIG HIVE

It was with much interest that I followed your discussion, several years ago, as to the superiority of the large hive over the small one for the production of extracted honey. I had been a user of the eight-frame dovetailed hive for some years before reading your articles, but the sound logic of those articles awoke me to the fact that I was pottering with a hive entirely too small for a colony with a normal queen. Incessant swarming and consequent loss of much of the honey crop had almost disgusted me when you brought out the Modified Dadant hive. Like a drowning man who grasps at a straw, I at once decided to adopt it and have yet to regret it.

I now have 119 colonies in the big hives, and my three years of experience with them has proven to me without a doubt that it is a hive well suited to this locality. That the large hive will be the standard of the future now seems apparent to even a casual observer.

O. C. Fuller.

Pennsylvania.

A Good Wheelbarrow

The picture shown herewith will give a good idea of the construction of the wheelbarrows used by N. E. France, of Platteville, Wisconsin, to carry his bees to the cellar. The first one was made with a wheel from a Ford car. The second is lighter, and Mr. France likes it better. This is made with a wheel from a racing sulky. The wheel is 26-inch, with wire spokes and pneumatic air-cushion tire. The rubber tire takes off the jar of moving, so that the bees are little disturbed from the ride to the cellar.

It will be seen that there are thin strips of wood outside the handles of the wheelbarrow to protect the hands from rubbing against the cement walls when passing through narrow spaces in the cellar.

Mr. France states that when he finds it necessary to use a light about his bee cellar he uses a red globe, since the bees are not attracted to a red light.

The wheelbarrows used by N. E. France.

The third of the State Experimental Apiaries near Dilley, Texas.

HOW TEXAS SERVES THE BEEKEEPER

By Frank C. Pellett

THE number of states which give official attention to beekeeping today, compared to the number which recognized the industry twenty years ago, is a good indication of the general increase in interest in honey production. Wisconsin passed the first state-wide bee disease law in 1897. Prior to that date California had provided for inspection in counties where the county authorities would support such work. Now disease laws are on the statute books of most of the states where beekeeping is an important industry. Prior to 1900, beekeeping was not taught in the agricultural colleges, except in an incidental manner, with two or three exceptions. Now, in most of the agricultural colleges of importance some beekeeping work is provided for, while a few have several men giving their entire time to it.

Texas is one of the states which give serious attention to the needs of the beekeeper. There the work is divided between the College of Agriculture and the Experiment Station. The educational work is under Prof. S. W. Bilsing of the college, while inspection and the experimental work are under the direction of Dr. M. C. Tanquaty, of the Experiment Station.

The College

Prof. Bilsing is Professor of Entomology, and beekeeping is included with other entomological work in one department. Prof. Bilsing teaches five courses in beekeeping, including an elementary course. During the last school year he had 92 students in his beekeeping classes. A small apiary is maintained at the college for student use. However, the students have no chance to complain that their teacher does not know the practical side of his subject as well as the theoretical. Prof. Bilsing maintains two commercial apiaries near the Brazos River where he produces honey for the market. One apiary is placed in a most attractive spot under moss-hung trees, as will be glimpsed in the picture showing the professor beside one of the hives. The students are given an occasional opportunity to assist in the outyards to give a practical touch to the class work.

Prof. S. W. Bilsing, who teaches beekeeping in the Texas College of Agriculture.

Extension

Texas has no regular beekeeping extension work, although Prof. R. R. Reppert, the Extension Entomologist, gives part time to beekeeping.

The State Entomologist has a staff in connection with the Experiment Station and the inspection force under his direction does some extension work incidentally.

Inspection

Dr. M. C. Tanquary, the State Entomologist, is responsible for the inspection work. He has a corps of five inspectors. Of these C. S. Rude is Chief Inspector and has direct charge of the work. A. H. Alex gives part time to inspection work and part time to queen breeding at the Experimental Laboratory. H. F. Morris, W. O. Victor, Jr., and W. R. Jordan complete the staff. The group photo includes the inspection staff.

Texas has a stringent disease law and empowers the State Entomologist to formulate rules and regulations which shall also have the force and effect of law. Such a provision would be a dangerous instrument in the hands of an incompetent man, but properly administered gives opportunity to secure maximum results.

The area cleanup method is followed, and it is the intention of the force to cover a region very thoroughly and to eradicate every case of disease as they go.

In the case of queen breeders and shippers of package bees the inspectors examine every colony before the opening of the season and withhold certificates from any apiary where disease is found. To make sure that there are no infractions of the rule, Mr. Rude often rides in the express car when about his work and thus has a chance to examine shipments of live bees in transit. In case

he finds any packages shipped contrary to regulations they are confiscated and destroyed.

The inspectors have adopted the rule of destroying nearly every colony found diseased. The report shows a few cases treated, but the general policy is to destroy the bees, together with the equipment. They believe that by this method they will get more satisfactory results and that in the end the reduction in the number of colonies infected will justify the cost of replacing burned equipment.

The report of field work from August, 1921 to August 31, 1922, is as follows:

Colonies inspected	45,530
Cases of Amercian foulbrood	618
Colonies destroyed	541
Colonies treated	77

For the year closing August 31, 1923:

Colonies inspected	44,000
Cases American foulbrood	340
Colonies destroyed	327
Colonies treated	13

H. B. Parks, the experimental apiarist, has started some extended investigations in beekeeping.

As administrator of the law, Doctor Tanquary encourages every man on his staff to develop his work and holds him directly responsible for the results obtained. In this way it is possible to develop the best possible team work, for every man feels that he will get due credit for what he is able to accomplish.

Experimental Work

Provision has recently been made for a special experiment station to be devoted entirely to beekeeping problems. A laboratory has been built in the country, about twelve miles from San Antonio, and a home for the apiarist will be built there. It was the intention to select a location where conditions would be typical of good beekeeping territory and where honey production could be carried on under conditions similar to those of the average Texas honey producer. The apiary is located in a region where mesquite is the principal source of nectar, but where there is a great variety of honey plants within reach. An irrigation system, to be supplied with water from a deep well, will be installed, so that honey plants common to other sections of the state can be maintained.

One of the important projects which have been planned is a detailed study of the Texas honey-producing flora and trial plots of annual plants which are good honey sources will be planted next spring. The honey plant garden will be maintained permanently, according to present plans, and after next year it is hoped to supply Texas beekeepers with seeds of such plants as prove of special value.

Work in queen breeding has been under way for the past two seasons and surplus queens are disposed of to Texas beekeepers at a moderate price. A. H. Alex is in direct charge of the queen breeding work, under the supervision of H. B. Parks, the apiarist. Experiments in controlled mating are planned for the future in the hope of obtaining better stock than can be secured by the natural selection of drones.

Two outyards are conducted from the laboratory, one at Dilley and one at Roxton. There are also seven apiaries at the State Experiment Substations where experimental results can be verified and where some demonstration work will be conducted.

Elaborate records are kept as to weather, etc., since it is important to know more about the influence of light, heat, humidity, etc., on the bees. Many of the experiments outlined will run from five to twenty years and some time must elapse before any striking results are obtained. Some of the less difficult problems can be worked out in a short time and it is expected that bulletins of practical value may be available before very long.

The picture shows the new laboratory, where it is hoped to secure some outstanding results in beekeeping investigations.

The Staff

The various members of the official beekeeping staff are shown in the pictures. Doctor Tanquary is missing from the group, which was designed to show the entire staff together, as he was too far to the end of the line. Tanquary, like Bilsing, has bees of his own and is part owner of a series of yards in Kansas, in addition to having one yard near the experiment station. Tanquary was a member of the MacMillan Arctic expedition and spent three years in the polar regions.

Prof. Bilsing was a bachelor so long that his friends decided that he was insensible to the smiles of the ladies. However, he has recently brought home a bride and settled down on the college campus.

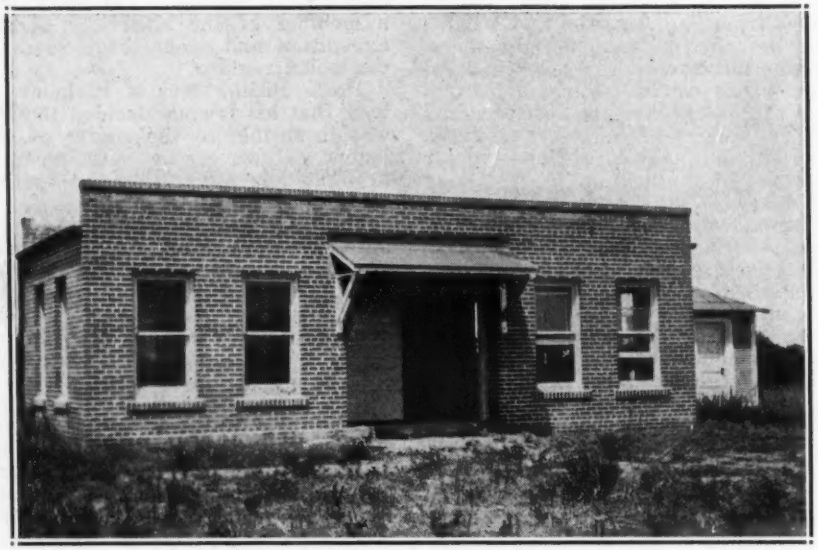
H. B. Parks is a cosmopolitan, having lived in Illinois, Missouri, North Carolina, South Dakota and Alaska before settling down in Texas. To hear Parks tell it, Texas is a good place to stay. He ought to know, for he tried a variety of locations before going there.

C. S. Rude was a Kansas inspector before taking up the same kind of work in the Lone Star State. A. H. Alex, H. F. Morris, W. O. Victor, Jr., and W. R. Jordan are Texas beekeepers who learned their business in the bee yards before taking up official work after their college training.

Dr. M. C. Tanquary is State Entomologist and has charge of inspection and experimental work in beekeeping.

Maryland Report

A copy of the report of the 14th annual meeting of the Maryland Beekeepers' Association has reached this office. Notes concerning the activities of the organization for the past year, together with the papers read at the convention, are included. Printed reports of association activities are becoming quite common and it is certainly a good way to increase interest in the affairs of an organization as well as to provide a permanent record of its activities. Those interested in the Maryland report should make enquiry of Prof. E. N. Cory, College Park, Maryland.



The new apicultural laboratory near San Antonio, Texas.

WHAT IS THE TROUBLE WITH THE BEEKEEPING BUSINESS?

By R. Deimer.

Why cannot the beekeepers get a living price for their product? I guess it is because there are too many men and women in that business who have not the least business ability and who have not enough backbone to go their own way, but are at all times influenced by the other fellows. For instance, there are men who know perfectly well that it costs them 10 cents to produce a pound of honey, but who sell that honey for 8 cents because Tom-Dick and Harry sold their crop for that price.

Bad as this may be, the worst offenders are those fellows who retail at wholesale price. We should make every beekeeper see that the bulk of the honey has to go through the regular trade channels, to-wit, broker, jobber, wholesaler, bottler and retailer, and that every one of those men has to have a profit to make him work for us. If a man is bottler and retailer, he cannot work for you if you allow him only the retailer's profit and expect him to bottle your honey for nothing. Some are wholesalers and bottlers and have to be paid for two services, too. Some jobbers have their own salesmen in the field, to whom they pay their brokerage expenses.

There is just enough honey retailed by the beekeepers to spoil the price on the whole crop. How can you expect the jobber to pay you a reasonable price when his salesmen report to him that honey is sold at 10 or 12 cent to the grocer? He has to figure all the different expenses and has to set his price so that he can meet those expenses, and sell at the same price, else he cannot do any business.

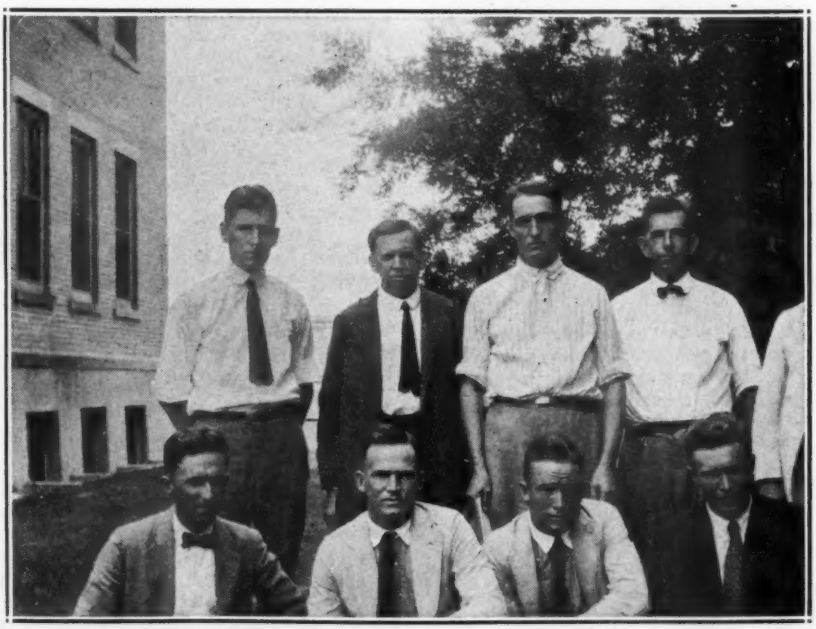
So, brother beekeeper, keep the producing and retailing business entirely separate. If you can get 10 cents for your honey in carload lots then there is no sense in selling that honey for 12 cents in quarts or 5-pound pails. If you act as your own broker, jobber, wholesaler, bottler and retailer, you are entitled to the profits of those different middlemen. It is pretty nice to cut out the middlemen, but we cannot get along without their services, and if we have to do their work ourselves, we cannot do it for nothing; we have to charge for it in the form of higher prices.

It costs at least as much to sell your honey as it costs to produce it and in smaller container the selling cost is accordingly still higher.

From my own experience I know that price cutting does not move the crop or stimulate the demand—you have to advertise and educate the people to the use of honey. But how can you spend money for advertising if you produce and sell honey at a loss? There are plenty people who do not care about the price at all, they will pay any price for a good thing to eat—if they want it, but you cannot even give to some of them more than 10 pounds of honey in one year unless you educate them to use honey in different ways. Other people use two 5-gallon cans in their family and have not enough.

It is today a scramble after the consumer's dollar. Eat more wheat, more meat, more apples; eat more bread, eat more eggs, more raisins, more prunes; eat more this, eat more that, stares at you from billboards, magazines and newspapers; but you find nowhere "Eat More Honey." People cannot buy more of everything, much less try to eat more of everything; so they buy and eat more of those things which are best and most cleverly advertised.

Nothing has better advertising points than honey, and if half that amount of money were spent for advertising honey as is spent for some other articles, we could not fill the demand for honey, at a much better price than we get now; but to do that, we must come together and must work together; and to bring the honey producers together is a pretty hard job for any man to tackle. He could preach and preach the gospel of co-operation, but would never overcome the narrow selfishness of some beekeepers. We are all selfish; everybody strives for himself first, that is human nature; but we have to direct our selfishness so that what is best for ourselves is best for our fellow workers, too. The only way to co-operate is to help yourself by helping the others. You cannot hurt the other without hurting yourself.



Texas official beekeepers. Upper row: C. S. Rude, H. B. Parks, R. R. Reppert and S. W. Bilsing. Tanquary came near getting into the picture also. Lower row: A. H. Alex, H. F. Morris, W. O. Victor, Jr., and W. R. Jordan.

OBSERVATIONS ON BEEKEEPING IN EUROPE

By Alma M. Hasslbauer

I HAVE traveled over more than a dozen American states and know that a beekeeper here can go very few miles without coming in contact, in some way, with other beekeepers. When I landed at Hamburg in June, I had a vague sort of idea that it would be the same way there, but I actually had traveled clear across Germany before I even saw honey on sale in any of the stores. It was in the little town of Plauen, in the extreme southeast of Germany, where I had to wait a couple of hours to make train connection. I was so excited over that little display of honey that, upon writing my diary that night, I devoted the most of the space to the incident.

Do not get the idea that there is no beekeeping in Germany. I merely did not get a chance to see as much of it as I would have wished. Traveling by train and not by auto makes a big difference and, besides, I was only one of a large party, and the only one interested in beekeeping. As a matter of fact Germany has a very interesting organization of beekeepers known as the Association of German Bee Societies. It has an enormous membership, which is made up of some 36 beekeepers' organizations throughout the country. The total membership was reported to me to be 238,466, with a total of colonies owned by members of 2,217,236. Some of the affiliated societies are very progressive and maintain their own experiment stations and libraries. Many of them arrange and carry on annual beekeeping schools and short courses. The Bavarian Association is the largest, having a membership of over 52,000 beekeepers. Wurtemburg has over 20,000 members. Many of these societies have their own official organs. In fact, I was surprised at the number and variety of German beekeeping periodicals of one kind and another.

In the north provinces of Germany, especially Hanover and Braunschweig, beekeeping is well developed and has a fairly accurate history of continuous operation for several centuries. A great deal of this northern beekeeping, however, is done according to the methods of the forefathers. In traveling through the northern coast country where diversified farming is practiced we could see the brightly-colored tile houses with thatched roofs, a field of clover, a small pond with a dozen or more ducks swimming about, a small apple and cherry orchard, and the usual few "skeps" of bees. Even though they persist in the use of the straw skep and the primitive methods, their honey crop is large enough to offer sharp competition to the more advanced beekeepers of South Germany who have more extensively adopted modern methods.

Across the border, in Bohemia, which was formerly a part of German Austria but now incorporated in the Czechoslovak Republic, I had more opportunities to study beekeeping at first hand. Czeschish beekeeping owes much to Wenceslaus Svarc, who passed away early in 1921. He is referred to as the "father of beekeeping," having been a powerful exponent of the new ideas in beekeeping and a prime mover in the determination to adopt movable-frame hives and modern methods. He founded a beekeepers' school in Tynice, near Prague, and established a Czesch magazine which was published from 1903 to the outbreak of the war.

Beekeeping methods in Czeschoslovakia, and beekeepers also, are sharply divided into groups. The "Progressives"—those who belong to the organization and who follow the ideas of Svarc, who was author of a book in Bohemian called "Progressive Beekeeping," and the German Modernists, who have adopted new styles of hives with the frames running longitudinally, as we have them. The older type beekeeper insists on having the frames run crosswise of the entrance. They claim that this prevents the wind from blowing into the hive and chilling the brood. Many wordy battles are fought on this battle-ground. Very few of the hives, of either school, have removable covers like ours. The hives are opened from the end, or sides. Many of the hives have one panel of glass so that the condition of the colony may be determined without opening the hive at all.

In the foothills of the Erzgeberger Range the problem of wintering is a serious one. Sheds are often built with sides that may be propped or swung backward during the spring and summer and closed tightly in the winter. The hives are mostly double-walled and, besides this protection, they are also snugly packed with straw, chaff or forest leaves. Some cellaring is also done, in winter, but even then double-walled hives are used.

To get an idea of the importance of Czeschish beekeeping I will give the figures from the Ministry of Agriculture for 1920. During that year there were listed 86,689 beekeepers in the Republic, owning 389,893 colonies of bees. The honey production reported was 1,273,481 kilograms, or over 2¾ millions of pounds. Of the various provinces, Bohemia led with 46,791 beekeepers and over 181,000 colonies. Slovakia proper had 18,765 beekeepers and over 90,000 colonies. In Slovakia, indeed, the colony average production was much the greater, being about 31 pounds, as against the Bohemian average of only about 11 pounds. In Moravia there are 14,672 beekeepers owning about 90,000 colonies of bees. Silesian beekeeping is not so highly developed as in the other sections. The same is true of the Subcarpathian Russian provinces, where methods are much more primitive. The chief beekeeping publication of the Czesch people is "Vcelarsky Roshlede," edited by Ivan Kitzberger, and published at Prague.

I did not go to Poland, I heard some interesting discussion of Polish beekeeping and learned that much interest is being aroused and modern methods are being eagerly adopted. L. Weber has championed the use of the Dadant hive and other American types. Of course the hive most in use is the "Warshauer" or Warsaw hive, a very large, bunglesome affair on the long idea type. Another hive often used is the "Slav" beehive, used mostly in Galicia and already described by me as opening from the side or rear instead of the top. The Polish beekeeping societies are united into three main organizations, instead of one, as in Germany. This is unfortunate, but it grows out of the disagreement over the type of hives and the methods to be used. These three associations have their headquarters at Lemburg, Posen and Warsaw, respectively. The Lemburg organization is the strongest and most important. There is a sort of loosely held together central organization at Warsaw, made up of delegates from these three provincial Associations. In Poland there are reported to be nearly 700,000 colonies of bees.

My visit to Austria was a rather hectic and exciting visit to the great cities and famous castles. Our party was eager to see the important places and things and had little patience with my efforts to seek out beekeepers. In fact they practically succeeded in preventing it. I did not even get a chance to visit Dr. Alois Alfonsus, the editor of Der Bienen Vater, of Vienna, which I would have liked so much to do.

In Austria there are about 80,000 beekeepers and some 350,000 colonies of bees. During 1921 the reported production was 1,320,000 pounds of honey and 286,000 pounds of wax. The main beekeepers' organization is the Reichsverein fur Bienenzucht with headquarters in Vienna. This organization has been in existence for over 50 years and has about 23,000 members. A great number of the smaller provincial societies and co-operative organizations are affiliated with this central body. Among these is a queen-rearing union which promulgated strict rules for its members. An organization of this kind would be valuable in America and must be effected some day.

The Reichsverein maintains in Vienna a school for apiculture where special teachers instruct selected classes of young beekeepers. There is a large library and reading hall

and a museum of beekeeping is maintained. To show the importance of the queen-rearing union which I mentioned a while ago, I will state that it even publishes its own journal, "Mein Bienenmutterchen." There is a Weed process foundation factory in Vienna, and in fact American and English methods of beekeeping are very popular there, although straw skeps may still be found in the rural districts, but I did not see any.

I will never forget my voyage down the beautiful Danube with its castle-turreted hills coming down to the water's edge. Away across those mountains to the east was Bulgaria, the place where I had shipped so many aluminum honeycombs year after year from my far-off Texas. There is a great interest in the keeping of bees in Bulgaria by modern methods and much development in beekeeping, and honey production has followed the war. A great deal is due to Mr. Nicolas Barakoff, who collected an exhibit of bee appliances of American make and took it from place to place over the kingdom, showing it to the beekeepers whenever and wherever a local society or association held a meeting. Only the lack of normal rates of exchange and normal transportation facilities prevent an enormous business between American manufacturers and Balkan beekeepers.

I was able to observe less of beekeeping in Italy than in any country visited. One reason for this was because in Italy I was, for the first time in my journey, wholly helpless to use the language. Another reason was that I merely visited the seacoast towns, such as Genoa and Venice and did not get to go through the interior, except as we traveled by train, and then mostly in the night. We, in America, know more about Italian beekeeping than of most others in Europe, anyway, because of our importation of queens, and I will therefore not attempt to give any details of conditions there. While I was in Venice, though, I could not forget that across that beautiful Adriatic lay Carniola, Banat and Dalmatia, the mountains of Caucasia, and other sources of so many interesting and beautiful bees that I have seen again and again at fairs and in apiaries, and I wished for wings to fly across and see them under their native conditions.

In Jugo-Slavia a nation-wide organization of beekeepers was perfected in July, 1921, at Osijek. Delegates were in attendance from all the little countries now united in this kingdom. Mr. M. Humek is the president. By their efforts much good has been done and a rapid development of beekeeping is promised. The chief beekeeping publication is Slovenski Tchebelar, published in Slovenian, and it emphasizes in every issue the advantages of modern methods, with special stress upon the adoption of American type equipment. A prominent Jugo-Slav beekeeper, Mr. Alex. Toman, of Ljubljana, said last July that: "The time is not far off when America will entirely dominate Jugoslavish beekeeping. American methods, American implements, American ideas, will prevail; and when they do the gainer will be Jugoslavia." There are some very large beekeepers in this district, too. Mr. Anton Znidersich operated at one time over 1500 colonies, of which many were in American-made hives.

Swiss beekeeping did not impress me, as I merely visited the more famous mountain and lake resorts, and in fact did not get to see a bee or talk to a beekeeper while in the Alps. I was glad to learn that the Swiss have a cooperative sales agency among their beekeepers known as the Federation Vaudoise. It is operated like our own Texas association. No one is compelled to sell through it, but by establishing an association pack and brand it secures a better price for its members. The profits of the organization are expended in advertising by sending out slips and recipe pamphlets for the purpose of increasing the demand for honey. One noticeable fact was the ever presence of honey on the table. Not only Switzerland, but every European country we visited, can boast of home consumption of honey. Contrary to the custom as when travelling in the States, honey was served us in the largest of hotels and cafes without our having to especially call for it.

When I left home I had intended to attend the international congress of beekeepers at Marseille, France, in September, as a delegate from the American Honey Producers League and the Texas Honey Producers Association, but the sudden illness of my father cut short my tour and I found myself on the way home when the congress was in session. It was the sixth such international congress, and it is regrettable that no American delegate was present. The next international meet will be held in Quebec.

I cannot resist referring to a bee pest known as the death's head moth which I saw. This is a very large and beautiful moth with distinct markings of white on a dark background that needs no great stretch of imagination to see how its name originates, because of its marked resemblance to a human skull. It is known as the **sphinx atropos** and is one of the largest moths in existence; sometimes in flight it is so large as to be mistaken for a small bat. It is a great lover of honey, but is too lazy to gather it for itself and sometimes annoys the beekeepers and causes considerable loss to them by the amount it steals. It alights on the wall of the hive and sneaks inside and drinks from the combs until it is distended. It is said that one moth can eat from a third to a half an ounce of honey at one sitting. It would not take many such moths to eat up the entire Texas 1923 honey crop.

AN ERROR OF BEGINNERS

By George Gilbert.

With the late honey harvest in full swing, and the bees carrying in honey and pollen with a rush, the bees fanning loudly each night, the beginner is apt to think: "The bees have filled that last super, are at work on another; I must give them another in a hurry or the honey will overflow the hive." He rushes the added super onto the hive, watches the bees work and figures up his honey prospects like this: "That first super has 30 pounds; the other at least 10; then there are 20 pounds more to go into the second one, and with the third full I shall have 90 pounds clear. After I take that off, the bees will fill up their brood chamber on aster, and I can have a nice profit on my investment of time and money."

The bees, indeed, work. There is a roar every night in the hive and a strong scent of new honey. The beginner perhaps brags a little to his neighbors about all the honey he expects to have. But, alas, he opens the hive after the harvest too evidently is over. He finds the top, or third, super used as a roost by a lot of young bees—late hatched ones that are to make up the winter population of the hive. He finds that the second super has no honey; the first one may be full or lack a little. He is amazed and rather inclined to think bees are liars.

What happened as the season drew to a close? The big lot of brood the queen had wisely prepared to send the hive into winter strong, had hatched. The big drones, emerging from large cells, left plenty of storage room. As each brood-cell was vacated, and no new eggs dropped, the workers filled the empties with honey or pollen. The rush of work that seemed to bring in honey may have been the last desperate effort of the field force to bring in enough from rapidly weakening flowers to feed the hungry young bees. And day by day, as the season waned, the old bees were dying off, the drones evicted. Always there was more and more empty space in the brood nest, and the bees, forewarned, began to lug honey down from above to make the nest secure from winter famine. So the great crop that the beginner counted upon did not appear. This is a common error of beginners—and some not beginners.

It Stops the Racket

Mr. George Raker, of Cresco, Ia., writes that when his neighbors get stung he sends a half gallon can of honey as a salve to the injured feelings. It proves to be a very cheap method of keeping neighbors on good terms with his bees. He has also requeened with Italian stock and finds them much gentler than the hybrids he formerly kept.

RESPONSE TO THE NECTAR STIMULUS

By J. H. Merrill, Apiarist,

*Contribution 318, from the Entomological Laboratory, Kansas State Agricultural College. This paper embodies some of the results obtained in the prosecution of Project No. 126 of the Agricultural Experiment Station.

IT has long been known that individual colonies in an apiary exhibit a marked variation in the total amount of honey stored during the season. However, it is not equally well known whether these variations occur as a result of a constantly appearing daily difference in the amount of honey stored or whether this advantage was due to the fact that some of the colonies worked while others loafed.

The daily record of the amount of honey stored by each of five colonies of bees was made at the Kansas State Agricultural College. Each of these five colonies was built up from a three-pound package received on April 15, 1922; consequently, each contained about 15,000 bees. Since these colonies were all of equal strength and were given the same manipulations throughout the season, a study of their individual responses to the honey-flow revealed some interesting facts.

These observations cover a period between May 15 and July 19, 1922. The five colonies were kept on platform scales and the daily readings of the changes in weight were made at the same time each day. The main sources of honey in and around Manhattan during the period in which these observations were made were alfalfa and sweet clover. Alfalfa is grown principally as a forage crop and occasionally as a seed crop, while most of the sweet clover is found growing along the roadsides. There are no particularly large alfalfa fields near Manhattan, nor are these fields necessarily adjacent, but they are, on the other hand, quite often widely separated.

Of course, the alfalfa fields are not all cut for hay at exactly the same time; yet, unless the alfalfa is allowed to mature and produce a seed crop, the time for cutting the various fields will be approximately the same. We have no data to show from which fields the college bees gathered their nectar, nor do we know the dates on which these various fields were cut. However, we do know the dates when the alfalfa was cut on the college farm, and the probability is that most of the other alfalfa fields were cut within a week or two of the same time.

The amount of honey stored each day by each colony is represented in the accompanying graph. On this graph are also noted the dates of the cutting of alfalfa on the college farm. A study of this graph shows that, although the total amounts of honey stored by these colonies varied during the season, yet almost without exception each colony responded daily to the utmost of its ability. Furthermore, it will be noticed that the responses are proportionate throughout the season. This would seem to indicate clearly that if the colonies in an apiary are all of equal strength, they may be expected to respond proportionately to their physical characteristics, which in this case are the size of the honey stomach, the size of the bee, and the length of its tongue. It shows plainly that bees are not whimsical in their work and the variation in the total amount of honey stored is not due to their loafing, but rather to a physical inability to accomplish more.

The curve which represents the daily amount of honey stored is a very fluctuating one, rising to several peaks throughout the season, after each of which it takes a sudden drop. Each of these drops is followed by one or two days, during which time very little honey is brought into the hive. An examination of the weather records of these periods offers no help in explaining this situation.

Probably the day on which the bees working in an alfalfa field reach the peak of honey-storing coincides with the time when the farmer thinks that that particular alfalfa is ready to cut. The bees of the college apiary probably did not gather any nectar from the college farm, but a comparison in the drop in the curves with the dates of the cutting of alfalfa on the college farm shows a very close relation. If these slumps in the curves are caused by the fact that their source of nectar has been removed, it would indicate that the largest percentage of the bees under observation were working in the same area at the same time. If the bees are guided to a source of nectar by an odor stimulus, it is not at all unreasonable to expect to find most of them working in approximately the same locality. Furthermore, the fact that they do not seem to recover from the slumps for one or two days indicates that this amount of time is required for the colonies to recognize a new odor stimulus and respond accordingly, especially in such a case as this, where the alfalfa fields are at some distance apart.

A study of the data here presented seems to warrant the conclusions, first, that colonies of bees respond to the utmost of their ability to the nectar stimulus and are limited only in this respect by their physical characteristics, since the amount of honey stored was directly proportionate to the size of the honey stomaches in each of these colonies. Second, that most of the bees in the apiary respond to the same odor stimulus. Third, that after one odor stimulus is removed, a period of time must elapse before the bees will respond to another one.

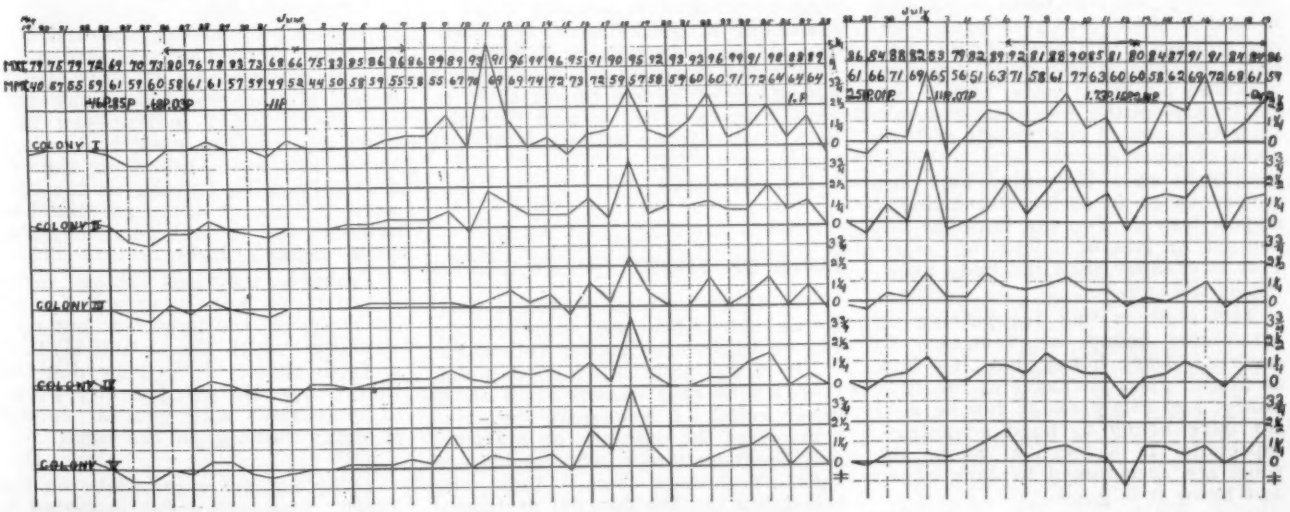


Chart showing honey stored during the season of 1922.

SANITARY PACKAGES FOR HONEY

By D. C. Gilham.

I USE paper cups for honey for store trade. These packages for honey I started using during the war, as glassware was so high in price and you could hardly get what you wanted. These packages have their advantages and disadvantages. You cannot see the honey inside, is one of the faults. Some prefer the glass, while others are satisfied with this package, as it can be sold cheaper than the glass. The package in itself is cheaper, and you don't need to heat your honey and bottle hot to prevent the granulation of same as you do with the glass package, in which the honey is always visible. This saves the beekeeper time, which is worth something, and the consumer can be given the benefit of it. In shipping or handling this package your weight is nearly all honey, and not glass. Three five-ounce glass jars weigh a pound, while you can put sixteen 7½-ounce packages on the scale and they will balance the three glass packages (empty packages.)

You can secure this package in different sizes and it will stand more rough handling before breaking than the glass. In going up a steep hill a box containing these packages upset in the back of my truck and three dozen went out over the street. One package struck a sharp stone and was damaged, the only one out of the lot that was hurt. That was a drop of about four feet for the lot. How about three dozen glass packages?

I have shipped quart sizes of this style through the mail without any damage. For the larger package I always seal the top by running melted paraffin around the edge after crimping over the edge of the cup. A crimping machine can be purchased from the firm making the cups. When it comes to buying machines for closing up certain kinds of glass packages for honey, you can't buy them, they just rent them to you and it sure does cut into your profits unless you are a BIG producer and bottler. To have printed cups, you must purchase 5,000 or more, but it certainly pays in the end when you consider the cost of your labels and the work of placing same on your package of honey. Unprinted cups can be purchased in as small a quantity as you desire. You can have the lids printed in lots of 1,000 or more. This is cheaper than the body printing of the cup.

This style is fine for putting up granulated honey, as it is easy to remove. Dark honey does not look as fine in glass packages as the light honey, and this package can be used for dark honey to good advantage, especially in a locality where the folks are accustomed to dark honey and know it is good.

At our State Agricultural show I found a man in Philadelphia who uses a wrapper similar to mine, but was using a paper called a "French tissue" that was very transparent, just as clear as a piece of glass, and of course showed off the honey better than the paper I have been using. He did not have any printing on his wrapper, but as soon as my present stock of wrappers runs out, I am going to try this "French tissue." He did not have binding tape around his package as I have, which seals the package tightly and prevents leaking of honey for some time if section receives rough handling and is broken.

At our State Agricultural Show I received 40 per cent more for my honey in sanitary packages than was received for honey which was open and exposed to the dust. Some folks took the other honey because it was cheaper, others came to me because of the sanitary package. The transparent wrapper sells more honey than the closed carton covered with printing. Many people do not read things as they should. Take, as an example, my small paper cup with the advertisements on the sides. They glance at it and then ask me what kind of HON-E-NUT BUTTER is in that package.

The Mono Service Co., Newark, N. J., manufacture these paper cups and call them "Kleen-Kups." I prefer to handle the paper cup for honey, but you must cater to your customers, and if they want the more expensive package—well, they must do the paying. You cannot see the honey in a tin can, why not the use of the paper package?

I might add that I have sold HON-E-NUT sandwiches at our Fair and they took well. I believe there is a big field for that combination and no one man can supply enough to meet the demand. I have had bees for 18 years and it has just been within the last couple of years that people around here are beginning to think that possibly there is something in the business, since Gilham seems to be making a living by it. It has been uphill work to get new users of honey, to get them to know the value of it and that my bees don't eat up all the fruit and grapes in the fall.

Pennsylvania.

LONG OR SHORT QUEEN CELLS

The following inquiry from a California subscriber was submitted to Jay Smith, whose answer follows:

"Is it the practice of good queen breeders to rear queens from short queen cells? I frequently see short cells, often the only one on a frame, and the question is whether to use them or destroy them. Some one asked this (in the Journal or Gleanings) and the answer was that the bees cut away lower cells so as to lengthen the queen cell, and that what seemed short were in reality long when cut open. This is true, and known to all beekeepers. Yet we do see cells that we know are short, both on midcomb and at the bottom. Is it supposed that such do not contain enough food, or is it that the bees choose an old larva? And does the queen turn out to be a good laying queen?"

In answer to this letter, I suspect more queen breeders do use cells a little bit shorter than they would like to, due to the fact that we cannot always get them quite as long as we would wish, but there are great improvements being made along this line by adopting improved methods, and if one is extremely careful to see that the condition is right in the colony that builds the cells there is no excuse for having small, short cells. If you will examine the cells in a colony that has just swarmed you will never find short cells. They are large and long and contain a great amount of surplus royal jelly. My advice in the matter is never to use small, short cells, for while some may produce perfect queens some might not contain quite enough royal jelly, and an inferior queen is the result. In removing a queen from a colony and allowing them to build their own cells they frequently choose larvæ so old that they do not have sufficient time during the growth of the larvæ to deposit the required amount of royal jelly. Hence the importance of using the smallest larvæ you can in grafting. During swarming or superseding they start with the egg, consequently have an abundance of time to feed the larvæ.—Jay Smith.

BEES AT LIGHTS

I have thirty colonies near an arc light in the city. On warm nights they flock to this light and are destroyed. I have a high board fence and curtains between bees and light, still they go to it. Is there any suggestion you can offer?

Louisville, Ky.

This is an unusual case and I do not remember having heard of a similar occurrence. If you have removed all chances of the light striking the hives, I believe you have done all that can possibly be done, unless you can obtain from the city that they delay turning on the light until it is very dark, for the bees evidently go to it before they stop their evening flight.

Probably the best thing to do would be to move your colonies out of reach of the light, or put up a structure which would entirely hide it from them. It is very doubtful that you could get the city people to sympathize with you far enough to delay turning on the light.

C. P. D.

(Why not put a red globe on this light? Insects are not attracted to red lights. F. C. P.)

BREEDING OF BEES

By C. H. Smith.

THIS article treats particularly of the inheritance of color, in first crosses between pure yellow (those with yellow on all five segmental bands, or with yellow also on the tip) and pure blacks or greys (those races which are black on all segments) in the honeybee

Parthenogenesis (virgin birth)

The discovery of this fact is credited to Dzierzon, and in ordinary parlance means that the females (without being previously impregnated) have the ability to lay eggs which hatch and produce offspring which are always drones.

Worker bees (undeveloped females) unfertilized, also lay eggs which produce only drones.

The drone is produced from a cell bearing only one sex chromosome. This fact produces, in the honeybee, something quite unexpected, viz.: the queen bee can become the mother of a new individual, but since it carries only one of the sex chromosomes the new offspring is always a male. By ordinary reasoning the drone sperm plasm is always responsible for the female sex, in the female progeny, so we must see that the drone carries the sex chromosome for femaleness and the females carry the sex chromosomes for maleness. This fact has been the stumbling block for many beemen, yet it is of great importance to the breeder.

Because of this fact and the peculiar distribution of the chromosomes, in the drone sperm (16 in the drone sperm and 32 in the queen germ), we find that all **first-cross** hybrid queens produce two kinds of drones, viz.: 50 per cent yellow drones and 50 per cent black drones **and no other colored drones.**

Dominance

"Dominant characteristics are those borne by the first generation from a cross between two individuals possessing respectively the two characters of a Mendelian pair."—(Darbishire).

To illustrate this: the factor which, in the first cross, shows only the characteristic of one individual (in that generation), while the other characteristic seems lost until another generation is produced by interbreeding of these individuals, then the hidden characteristic reappears.

In the honeybee, the yellow of the pure yellows is dominant to the black of the pure blacks and this fact holds good whether the queen, of the first cross, be black and the drone yellow, or vice versa. The female progeny will all show the yellow color, but the drones will be of the same color as the queen (the mating of the queen has no bearing whatsoever on her drone progeny).

Inheritance

Known predisposing body conditions are inherited and continuous line breeding will surely accentuate them.

Defectives should always be destroyed. The parentage to be perpetuated should be only that nearest approach to perfection that can be determined for individual requirements.

After a thorough understanding of the facts above noted you are asked to consider the following figures (in these figures the squares shown represent the queen, under consideration, while the letter "Y" denotes yellow and is shown in the squares and circles, shaded horizontally, while the letter "B" denotes black and is shown in squares and circles shaded vertically; also the circles only shaded in one half represent drones and their chromosome charac ter, the dotted lines connect up the offspring of your queen.)

Fig. 1.

The mother of your purchased queen is pure "YY" yellow, but she is mated to a black drone "B" and your queen is a "YB" hybrid yellow (on account of the dominance of yellow in first crosses); she is mated (as per advertiser's claim) to a pure yellow "Y" drone and, although she appears yellow, she will produce two kinds of yellow females, viz.: "YY" pure yellow, and "YB," hybrid yellow (which to all appearances are alike, but of course will produce different colored progeny), while her drones will be of two kinds, viz.: 50 per cent pure "Y" yellow and 50 per cent pure "B" blacks.

Figure 3 will give you exactly the same conditions to fight against, and we prove that to be true by using a pure "BB" black queen-mother.

Fig. 3.

In this diagram we show that if the queen-mother is "BB" black, though all future matings are pure "Y" yellow, your queen's progeny will be exactly the same as that shown in Fig. 1.

Fig. 2.

In this figure we cover the case of a guaranteed pure "YY" queen, being mismated to a black "B" drone.

This purchased queen will appear, and is, pure "YY" yellow; her drones will (on account of parthenogenesis) be pure yellow, her female progeny will appear yellow, but they are only hybrid "YB" yellows.

Of course, any pure "YY" queen mated to a "Y" drone will give all pure yellow progeny, but the purity, on account of the dominant yellow, should always be investigated.

Summing up the results of the foregoing crosses, we find as follows:

Fig. 1 and Fig. 3 give identical results, although your queen seems to be yellow.

Fig. 2, conceding the queen is mismated, will surely be some better than Figs. 1 or 3.

There is only one course to pursue, and that is, **be sure of the queen as well as the drone.**

It is of utmost importance that your breeding queen's daughters produce only pure drone progeny.

If your purchased queen produces any drone progeny which is not yellow, you may be sure that she has black blood somewhere in her makeup, and her mother was mismated.

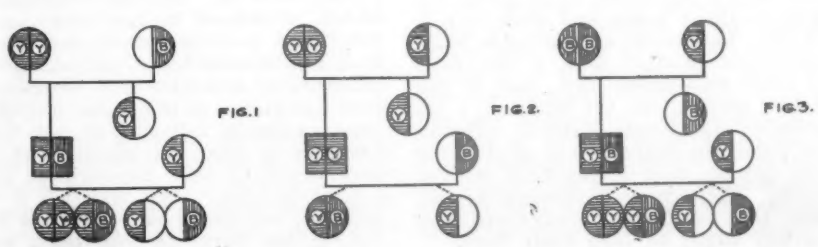
If your queen's daughters produce any drones which are not pure in color **(but be sure that these drones are the progeny of that queen and not visitors from other colonies, for we all know that drones are ordinary freebooters and are accepted anywhere)** then she is surely a hybrid.

Numerous other characteristics must be considered, all of which go toward the makeup of a desirable queen, but this article treats of color in first crosses, and cannot cover those other factors; yet one of the most readily detected signs of mixed matings is surely **color.**

A queen may conform to all the above color requirements, yet be useless (poorly fed larvæ, poor introduction, etc., all are contributory considerations).

The one necessary requisite of obtaining pure stock in your bee yards and queen yards is to learn how to differentiate between pure and impure stocks.

Incidentally and enormously vital to the success of correct matings and selections is the discovery of a **practical** method of hand fertilization of queens to any selected drone. This discovery will surely eliminate many inaccuracies and add a greater impetus to the **pure stock** breeder's work.



STORAGE OF HONEY AWAITING A FAVORABLE MARKET

By C. P. Dadant.

ALTHOUGH it is advisable, as a rule, to sell our produce as early as possible, there are many instances when a hurried sale is a mistake. Honey rarely sells at its full value until the season for honey consumption is at hand. This is usually from the middle of September till after the holidays. In a light fruit season, honey may sell well until the warm weather comes again. This depends upon the amount of canned fruit which the housekeeper has stored. The percentage of honey sales certainly depends a great deal upon both the plentifulness of fruit and the price of other sweets. In any case it is well to be prepared to store our honey where it will keep best.

Many people have the habit of storing their honey in the cellar, with their jars of preserves. If the honey is in sealed packages, like the fruit, it is as good a place as any. We could not keep preserves, unsealed, in the cellar, neither can we keep honey there.

Honey has strong hygrometric properties, or, in plain words, it absorbs and retains moisture from the atmosphere readily. We all know that the atmosphere contains more or less humidity, much in moist weather, but a little at all times. We see it very plainly when we bring to a warm room a bottle of ice cold liquid. The moisture in the air condenses upon the cold surface and we then say that the bottle "sweats". The deposit of water does not come from the glass, but from the air surrounding it. Whenever we see much moisture gathered upon a cold surface we may be sure that there is plenty of it in the air, in the state of vapor, and we do not realize that it is there until the cold surface changes that invisible vapor into water. Honey has similar effect upon the air. When it is cold, the air striking it deposits upon it a lot of moisture and the honey becomes thin on the surface. There is but an easy step between that and fermentation; the latter being brought about by the germs floating in the air or existing in the honey. That is why it is so important to have our jars of preserves well sealed after heating has destroyed all the germs in our preserves. But honey cannot be heated without injuring it more or less, evaporating its exquisite essential oils which give it the perfume of blossoms. When it is heated to prevent its granulation it is rarely heated enough to destroy all possible germs of fermentation.

So, unless our honey is very tightly sealed in air-tight vessels, the cellar is a bad place to keep it. Comb honey, being kept in wooden cases, cannot be protected from the air. Even if many of its cells are air-tight, some of them are defective in their seal, as has been shown by Cheshire and others. There are also a number of cells unsealed and containing honey. These, when the honey is kept in a damp place, will gather so much moisture that they may get overfilled and run over.

For that reason, the only safe place to keep honey is in a warm, dry place. A honey-house well exposed to the sun and well above ground is all right. An attic or a warm upstairs room, a dry corner in the kitchen, if the quantity is small, will prove satisfactory.

Honey in well-closed hardwood barrels keeps well in the cellar, as we have tested to our own satisfaction by keeping a number of barrels, granulated, for six or seven years, or until the price raised to the proper level. It often happens that the crop is large all over the country; then prices are dull. If we do not hasten to sell, if we have economized upon previous crops, and have invested some of the money made, we are not compelled to sell, and can hold our honey for a better market, especially if it is extracted, for comb honey is bound to deteriorate a little, especially if, like alfalfa honey, it has a tendency to granulate in the comb. That is one of the disadvantages of comb honey production as compared with extracted honey. This is also where we make a mistake when we try to cater to the popular American prejudice against granulated honey. I say "American prejudice," for the article on page 503 of the October number, by J. Skobvo, shows very plainly that Europeans are accustomed to the idea of the granulation of honey, as I have often stated.

It may be possible to keep our comb honey in a store room warm enough to prevent its granulation. I believe this would be difficult to do in our changeable climate of the Middle States. But we must keep it in as dry and warm a room as we can.

Keeping extracted honey from one year to another is often profitable, if the crop is large. We must not be unreasonable, however, and hold it at a price out of reach This reminds me of one of our big farmers who had some ten thousand bushels of corn and wanted 80 cents per bushel. They offered him as high as 76 cents and then corn began to go down. He kept it three years and then sold it at 45. Let us set a reasonable price upon our product and, if the crop is large and prices low, hold it for better prices. In the eighties, I remember California dealers offering us honey in carload lots at 3 cents per pound, with 3 per cent off for cash. Then came a disastrous year and the California beekeepers had to buy sugar to feed their bees.

The handling of honey in barrels has been considered a nuisance, by a great many people, who think they must destroy the barrel if the honey is granulated in it. I remember having received an order for a barrel of liquid honey, when we had only granulated honey. I removed the honey from a barrel, melted it, allowed it to cool, and put it back in the same barrel. The man who received it was very much intrigued, for he perceived that the barrel had been opened, and he asked me to give the method I used, in the American Bee Journal. I did so and have just tried to find the article in question in the back numbers. But A. B. J. is a library in itself and I have not been able to find it. It was some thirty-odd years ago. If the readers are interested, I will gladly give the method again, in some future number.

Experienced beekeepers are well informed upon the necessity of keeping honey in a dry place. Most of them have learned this by dear experience. But a number of beekeepers have asked for information on this point, hence the above article.

THE HUBER LETTERS

Travel Supplies of Swarms.

Lausanne, August 24, 1831.

You will be astonished, dear friend, of the discovery which I am about to entertain you. You will gain without trouble a beautiful and satisfying idea, quite in agreement with those that you have already, concerning the police and the rules which divine wisdom and kindness have given to those beings that you love, and from which they cannot swerve; or, still more astonishing, to which we see them come back when they have swerved from them. I have spoken to you of the queen occupied with a sole object, the disquietude caused in her by her young rivals, which leaves to her no other desire than that of leaving her home, but she does not wish to separate herself from a people which is composed solely of her children. Watch her running as in delirium through all parts of the hive, crawl over the bodies of her companions, touch them, strike them with her antennæ and give them to understand, in a way which she cannot express otherwise, her desire to leave and the order to follow her. One cannot doubt that this order, this wish, are understood, for obedience is immediate; she transmits her agitation to the entire tribe. By the restlessness which is stirred in her wake, you may know that she passed by; when it is at its height she rushes to the entrance of her hive and sometimes goes out alone, as if she did not care whether she is followed or not. The entrance is often too narrow for all that come to pass through at the same time; they must wait till it be possible, but the queen does not delay, in her turn, to join them and

take flight. This is all I knew when I caused to be published my "Letters upon the Swarms." On the 15th of May, 1816, I had sixteen colonies, strong, well stocked, and whose queens were all a year old; they were therefore ready to swarm. I caused them to be watched carefully so as not to lose the opportunity of reviewing facts as singular as those which I have just mentioned and of which no one had spoken. I did not hope to see new ones, but I was mistaken, as you will see. The charivari which we heard about us informed us that there were some swarms out in the vicinity. We went at once to my garden, so as not to lose those that might come out of our own hives. After a quarter of an hour of expectation, one swarm came out, which we judged to be strong, by the noise that it produced. Its queen came back to the hive two or three times (as if she had forgotten something), but she could not go in on account of the entrance being obstructed by the great number of males and workers that were also trying to escape and mingle with the bees of the swarm that were already out of the hive and had preceded the queen. We enlarged the entrance to facilitate their egress; they came out then with the impetuosity of a torrent. Being eager to see what was happening inside of that hive, while the swarm was going out, we opened the blind that covered the outside comb. When placing our hand on the glass, we found it extraordinarily warm; this was caused by the affluence of the bees which covered this outside comb almost entirely and by the excitement which existed among them. As they showed us only their backs, we could not distinguish exactly what they were doing; it was necessary to disturb them by passing a leafy branch over them or by bringing towards the glass a lighted candle, the warmth of which would compel them to move; these expedients were successful; we saw, to our great satisfaction and to our surprise, that the cells which were sealed that morning and entirely full of honey had been opened and the honey removed. I will not depict the pleasure I received from this sight; you know my sentiments; it was of the safety of the bees and of the providential care of them that I was making sure. Without that, without the **foresight,** or rather the astonishing **presence of mind** of the bees, who always do at the proper time what needs to be done, what should have become of that swarm, coming out of a well furnished home to go into one deprived of everything? What would have happened if bad weather had overtaken it at its arrival in a new habitation and had prevented it from going out during the first days of its establishment? The impossibility of harvesting any crop would have deprived it of honey, without which they could not feed themselves, nor produce wax, nor build the cells where the eggs of the queen must be deposited. You have seen how this was provided for.

This observation was soon confirmed; another hive in the same condition, the swarm of which was about to issue, showed us also its outside comb covered with bees that were hurrying to remove the honey from barely opened cells. As they were less crowded than the first which had shown us the same action, we were not compelled to disturb them in order to better see their actions; for three or four minutes during which they remained in the hive, under our eyes, they did nothing other than what we had seen before. Their eagerness to gorge with honey was evident, but the haste which they used in this was a proof that the need and the desire to join the emigrating bees was occupying them also.

On the morning of that day and the preceding days, we had seen honey spread about in all parts of the hive; it appeared then that they had removed it to keep it safe from robbers, or perhaps they had wanted to gather it at the back of the hive so as to have it more handy at the time of the departure of the swarm (this supposition appears to me to be the more likely).

The Swarm Carries Supplies.

The agitation of the queen, communicated to the entire tribe, was therefore to end in giving them the idea of flight with which she was herself possessed, but to leave empty-handed would have been running to ruin. Such was not the aim which Nature proposed; her aim was more material. They had the positive order never to swarm without taking along with them, to their new home, enough honey for their subsistence, which could alone enable them to construct new combs, to serve as cradles for the new generation and as store-rooms for the crop.

You will want to see all this yourself, my dear girl; the experiments which I have published in my memoir which treats of the origin of beeswax will lead you, and I advise you to read it all over. I suppose that you will make a swarm in a glass hive; you will be doing only what the bees do themselves when, obeying their instinct, they leave their native hive and go seek at their peril, and sometimes at quite a distance, a new domicile. Continue to imitate them; you saw that they do not leave empty-handed. So, let your swarm find in its new home a good dose of honey and a little water in a sponge, a few ounces; you then put this swarm in the position of a natural swarm which has been overtaken by bad weather at its arrival in its new home and the bees of which, kept within by rain, are not able to harvest anything on the flowers, a situation which you will imitate by closing them up in their home, taking care, however, to supply them with air. On the evening of the first day of their emprisonment, the panes of glass of your hive will allow you to see the swarm suspended in the upper part and very quiet in appearance; the interior of the cluster formed by the chains or garlands of bees suspended to the ceiling will be hidden from you and you will not see what is happening within; you will see distinctly the surrounding curtain which envelopes this cluster, and which, composed of workers joined to each other by the claws of their feet, surrounds it with a veil or a movable curtain. The natural swarm and the artificial swarm would give you the same picture. Your ear pressed consecutively against the glass partition of either hive would perceive a sound resembling a sort of chattering produced by the jaws of the workers occupied with the preparatory work of their architecture, a work which is performed upon beeswax only.

The process which you follow in your experiment brings you the same results which have been achieved by the bees of a natural swarm, and I may compliment you upon having succeeded as well as Nature herself.

Other tests, made at the same time, taught me that pollen furnished to the bees the only food suitable for their young. Honey or sugar, used without being mixed with the pollen of stamens, is not suitable. I have witnessed the death of the young when I tried to confine them upon this food. Their death was always followed by the desertion of the bees.

My new tests confirm the preceding ones fully; the natural swarms produce wax by means of the honey they find in the flowers, as the swarms which I may call artificial produce it also by the same means or through the honey which I supply to them myself; up to this time, I have seen no difference in the results of the tests. The natural swarms which enabled me to make this discovery showed me all that Nature had done for their preservation.

HONEY SELLING BETTER

The problem of selling the honey crop is not so bad this year; people seem to want honey and there is not the least complaint about cutting prices and underselling. People will want more and more honey as they get used to it. My home town and vicinity use tons now, when 20 years ago a few hundred pounds would be all that could be sold. I have a new way of putting up honey for retail for the home trade; in Graham paper packages. They don't cost like tin or glass and when empty people can burn them and they are out of the way. Daniel Danielsen.

Ants Again

If ants trouble anywhere, sprinkle 20 Mule Team borax around floors, shelves, on top bee hives, around supers piled up, or anywhere they travel. I have found it very good.

Henry Rice.

Illinois.

THE EDITOR'S ANSWERS

When stamp is enclosed, the editor will answer questions by mail. Since we have far more questions than we can print in the space available, several months sometimes elapse before answers appear.

CARE OF HONEY

I have some chunk honey in shallow extracting frames that I have tiered up eight and ten supers high in the house, in a spare room, and the moths have got into some of them. I went through all of them and killed what millers I could find, but they have laid eggs that I could not get. What can I do with it to save it? Would I be safe in using carbon bisulphide, or would that spoil the honey?

ILLINOIS.

Answer.—Either the burning of brimstone in a metal vessel in the room, after closing all the air openings carefully, and spreading your supers so they may get a part of that poisonous gas, or the placing of bisulphide of carbon on top of the pile of supers in a rag or a saucer, in quantities of one-eighth ounce to the cubic foot of space, will kill the newly hatched larvæ. If you suspect the existence of eggs unhatched, repeat the dose a week or so later. Be sure and have everything closely boxed so the fumes cannot escape before they have done their deadly duty. Carbon bisulphide is explosive and no light nor lighted pipe should be brought near it. After the room has been kept closed a day or two, give everything plenty of air, and there will be no trouble as far as giving a taste or an odor to the honey. After that, keep fly screens on both windows and doors leading to that room, so moths cannot have access to it. Remember they are night birds, and not to be trusted till cold weather kills them.

NATIVE BEES—PETRIFIED COMB

1. I request to be informed if there were native bees on this continent before the Spanish, German and Italian bees were introduced?

2. Did you know or ever hear of such a thing as petrified comb honey?

Hoping to hear from you soon, I am.

CALIFORNIA.

1. Replies to your first question, in both the affirmative and the negative, have been made in the American Bee Journal lately. See pages 299, 300, 301, 352, 353. Personally, I do not believe that the honeybee that we cultivate now, Apis mellifera, is a native of America. But perhaps it is best to say, as did Dr. Miller: I don't know.

2. There are some petrified formations which would lead any one of us, uninitiated with the study of fossils, to conclude that they were petrified comb or comb honey. But I am rather of the opinion that scientists would show us that when these were formed there was no such thing as bees in existence.

Picking up the "Ancient Life of the Earth," by H. Alleyne Nicholson, in the International Science Library, we find cuts and descriptions of a number of formations which resemble honey combs, in the lower Silurien period. I will mention Columnaria alveolata, Favosites hemispherica, F. Gothlandica and even Palæchinus ellipticus, which shows a sea urchin with bee-cell shaped formation. If there ever was actual petrified comb, I do not know of it.

ONION HONEY

The last supers removed this fall from my hives contained honey sealed, partly sealed and unsealed. The honey is now very cloudy, or about the color of tapioca cooked; it seems to be ripe, full weight and fairly good flavor. In looking into a pail of it, it does not seem as though it is well mixed with the other honeys, but the dark color predominates. I have never seen honeydew. This may be from wild onions; there is about 7 or 8 acres near and bees worked strong on them for their full bloom period. I only noticed them taking pollen. Have you ever seen wild onion honey, or do the plants give any nectar? MINNESOTA.

Answer—"American Honey Plants" mentions wild onions as supplying honey. Richter reports that "the onion yields freely and the honey is said to be amber in color with a characteristic onion flavor which disappears after the honey is fully ripened." Whether your honey is from wild onions or other plants, or a mixture of different yields, it is very probable that the "cloudy tapioca color" is due to its being in the process of granulation. Honeydew is a very dark brown substance and not at all good. If your honey has a good flavor, you need not worry about its granulation. It is easily reduced by heating to about 150 degrees, if wanted in the liquid form.

FERMENTING HONEY

1. Will you please tell me whether honey, extracted, that has partly sugared will sour?

2. If you put sour honey for the bees to make over, will they bring it back to normal?

3. Would you advise heating to take out the moisture?

4. When I extracted this honey it was three-fourths capped; I put it in a can with last year's honey that had candied; left it in the cellar two days with lid off, letting cappings drip; cellar not very damp. The comb was made last year. What is the trouble? KANSAS.

Answers—1. Extracted honey may be partly granulated (or sugared as you call it) and yet may ferment or sour, if part of it is unripe, and especially if it is kept in a warm, damp place.

2. The bees cannot "make over" sour honey. It is not good for them. The only way to improve it a little is to heat it slowly and evaporate the ferment and thicken it. But it will never be first-class honey, after it ferments.

3. Yes, heat it. It will help it.

4. Evidently, putting it in the cellar, and letting the cappings drip into it, is what has helped to make it ferment. The cellar is the worst place in which to keep honey. Keep it in a warm and dry place, as otherwise it will gather moisture and ferment more or less. No matter how old the comb be, it has nothing to do with the fermenting of honey. At least we have kept honey in old black combs and it was as good as any other honey, after it was extracted.

PACKING CASES

What do you think of the quadruple packing case for wintering bees? How and when is the best time to put them in it so they will not lose their right entrances?

IOWA.

Answer—The answer to your second question is the only stumbling block in the way of the quadruple case. The quadruple case is excellent to winter bees, if they can be put into it in such a way that the bees will not lose their right entrances.

Some people move the strongest colonies to the farthest side, so that the last bees may enter the weaker colonies. Others keep the bees the entire season facing exactly the same way as they do in the quadruple case. I believe this method is the best. But I believe that I would still better like the method used by the Greiners, of New York State, who place bees in double or triple cases, not changing the location of the hives at all, summer or winter. Single winter cases would be still better if they were not so expensive.

MATING QUEENS

1. Is there any way that virgin queens can be mated to drones of certain hives?

2. Does a queen only mate one time, or does one mating only fertilize a limited number of eggs? TENNESSEE.

Answers.—1. The only method so far known of getting a queen mated with the drones of a certain hive is to put the hive containing the queen and that containing the drones in the cellar until the hour at which the other drones have quit flying, say about 4 o'clock p. m. If the colonies are strong and the drone hive has plenty of drones, and if the queen is at the right age, about five days old, there is a chance of her mating with one of those drones. The method is not much followed because of the labor involved.

2. Each queen mates once, and it usually serves to fertilize all the eggs that she will lay, as the sperm of the drone is located in a small pouch near the oviduct of the queen. But if the queen's pouch or spermatheca is not filled at the first mating, it is said that she will go out again and mate a second time. Some modern beekeepers claim that this happens very often. We have never seen it, neither did Mr. Langstroth, as is shown by paragraph 124 of "The Honeybee," last edition. But it probably happens sometimes. Huber saw queens go out several times for their mating flight, but only once did they show the signs of having mated. After thirty days, and perhaps sooner, a queen loses all desire of mating.

POOR STORES—MATS, ETC.

1. My bees have been sucking the juice from ripe watermelons and muskmelons. Is this good feed for the bees?

2. Would it increase the warmth if a mat was placed between the cover and frames? Would this do more harm than good?

3. Is dandelion honey that the bees get in the spring good for winter feed?

Answers.—1. No. Watermelon juice, grape juice, apple juice, honeydew, are all bad for wintering, because they contain too little pure saccharine matter. Better extract all of that, if it is yet time, and give them good sugar syrup, two of sugar to one of water.

2. Yes, by all means, use a quilt over the combs, provided it is not so made that it will let the air pass through. It should be like a quilt on a bed, allow the moisture to pass out without creating an air current.

3. I have no experience with dandelion honey, but as it is harvested in spring, it is not likely that there is enough left in the hive for winter to make a test. My impression is that it would make fairly good winter food if thoroughly ripened.

MOVING SHORT DISTANCE

I have eleven colonies of bees in ten frame hives, two hive bodies to the colony, located in my back yard. During the past season they have proven somewhat troublesome in administering an occasional sting to my children and their little friends.

It is advisable that I move them to my orchard, a distance of probably 150 or 200 feet. Please suggest a practicable way to do it. My experience in moving bees in the past has been somewhat unsatisfactory owing to the determination of the bees to go back to the old location. Our last honey-flow—aster—is just closing, and I fear robbing if the colonies are materially weakened in the moving process.

I winter my bees in packing cases, two colonies to the case. Moving a few inches a day is hardly possible owing to the topography of the ground, and moving them a mile or two away and then to the new location is hardly practicable. How shall I do it? I contemplate packing them in the new location. VIRGINIA.

Answer.—When you move bees a short distance, you must make them positively acquainted with the fact that they have changed location, just as a swarm does. The reason why the bees of a swarm do not go back (except in very limited numbers) is that they are in great excitement for a few hours.

Close up your hives at night and move them early in the day. Then, before releasing them, give them a great deal of excitement, by smoking and drumming them, so that they may realize that something is wrong. Release them during the excitement, placing a slanting board in front of the entrance, so they may notice the change of appearance of the location. Do this on a warm day.

If any bees return, in numbers great enough to be worth while, bring back to the original position the weakest of your colonies. The lost bees will adopt this hive, and if you move it again the following day, using the same tactics, very few bees will insist on returning to the previous location. I prefer to move the weak hive first, also, so as not to leave a vestige of the old location marks, at first. But when bees have been lost for a while, they are likely to look carefully at their next flight.

If you follow these instructions carefully, you will not lose enough bees to make it worth while to bother.

Have you tried a half-inch wire screen 12 feet high between your house and the present location of the hives? This might help prevent the bees from stinging.

POLLEN IN SUPERS

My bees persist in filling my extracting supers half full of pollen, which causes the moth to work on the empty combs after extracting. If there were no pollen in the supers the moth would not bother.

Do you have that trouble, and do you have any remedy? IOWA.

Answer—The only examination I can give of the fact that you have much pollen is the extracting supers is that your bees do not have room enough in the brood chamber. Perhaps you have small hives. We have never been troubled with pollen in extra quantity except with queenless colonies that have no brood to feed.

Working for comb honey would not help matters, as pollen is more objectionable in comb honey supers than in extracting supers. The only remedy that I could suggest would be to put a queen excluder between the super and the brood chamber at the time of year when you are troubled in this way. This would not do away with it altogether, but it would make it less convenient for bees with pollen on their legs to go up into the super.

As to pollen attracting the moths, they are attracted by old combs anyhow, and should not be permitted to invade any supers. Of course they will work more readily in supers containing pollen than in clean ones, but when they get into supers they will destroy them. If you do not keep any combs exposed during the season you will have but few moths to annoy you. Then you should put away your supers when the crop is over and burn brimstone in the repository where they are kept. This will do away with the moths.

HONEY IN RADIATOR—PASTE FOR TIN

When honey mixed with water is used in radiator, and engine gets hot and burns the honey until the water jacket is practically full, how is the best way to get it cleaned out, or what will clean it out?

Also, can you give formula for good paste to stick labels to tin or glass? I noticed in A. B. J. or Gleanings to use shellac, but that comes through and stains face of label. OHIO.

Answers.—1. Yours is the first unfavorable mention of honey in radiators, outside of the warnings given for fear of the transmission of foulbrood. We are glad to get it, for we must have all sides of this question.

Hot water is the best solvent we know of for burnt honey, with a little addition of lye or strong soap. But if the radiator is full of burnt honey, so that you cannot create a current in it, it will be difficult to cleanse.

What the beekeepers ought to learn is how this came about. You must have had very heavy a proportion of honey in that radiator. Half and half, honey and water, is the heaviest proportion we would use. With use, we may find that even less honey will do. When the water evaporates, more water must be added before the radiator cools, so that it may mix well.

2. We make ordinary flour paste, mixing water very carefully with flour, so as not to have any lumps, and heating it while stirring it over a fire until it gets to the proper consistency. Bear in mind that it will thicken in cooling. Some people add a very light amount of honey to help it stick. Labels do not peel off unless they are made of too thick paper, if the paste is right. Shellac is no better than paste.

WINTERING

I write to ask some questions about wintering bees. First, it might be well to acquaint you with conditions here. This is a new country; our elevation is 6,000; the temperature falls as low as 35 degrees below zero, but usually there are spells each month warm enough for the bees to fly; but the winters are long; the honey-flow lasts from June 20 till September 5, on an average, and is continuous, or nearly so; a few ranchers here have bees. I have had experience with bees all my life, but not on a commercial scale. I have been keeping bees here for six years. The ranchers mostly leave their bees to winter on the summer stands without protection, and more or less of the colonies live through. I have adopted the outdoor plan of wintering. I arrange the hives close together (about 12 inches apart), on the summer racks, about 14 inches above the ground, and pack straw underneath and on all sides except the front, which is left open. This fall one year ago, I had 22 colonies; I left empty supers with sections on most of them; some had inner covers on the supers, and some the top set flat on the supers. I had to remove the ice from the entrance frequently; water seemed to come from the side the hive. Eleven colonies died. On opening them, I found they all left honey. The supers all had to be cleaned and some sections thrown away. All the dead colonies showed signs of being too damp inside. This winter I packed the same way, without any supers on, the inner covers or tops setting flat on the hives, except some which have extra hive bodies on top, with some honey in; but I am having the same trouble with ice at the entrance this winter. I neglected to say that we have from two inches to one foot of snow every week or so, but I keep the snow away from the entrance, especially when it is thawing in the day and freezing at night. My trouble seems to be not a question of warmth, but enough ventilation to stop the condensation of moisture and still keep the bees warm enough.

1. What arrangement of the top of the hive will give ventilation, stop the condensation of moisture and keep the bees sufficiently warm?

2 Would a cushion made of gunny sack filled with chaff give sufficient ventilation, stop condensation of moisture and keep the bees warm, if placed next to the frames?

3. Would it be safe to break the seal and place a cushion next to the frames at this season of the year?

Among the thousands of inquiries you receive, I hope this one will not prove so long or tedious but that you can give me some information. COLORADO.

Answers.—1 and 2. The trouble, in my opinion, may lie in two directions. The honey which your bees harvest for winter stores may not be ripe enough or may be unsealed and becomes too watery. But the main trouble is probably the large amount of space above the cluster, either in sections or in upper stories. Bees produce moisture when they consume honey in very cold weather. The moisture produced by your bees freezes around them, instead of evaporating. I believe that if you have warm absorbents, right over the cluster, which will let the moisture pass out without giving a draft, just as when you have a warm blanket over you in bed, there will be less condensation about the cluster. We have had chaff cushions or leaves so moist in spring, above the cluster, that they were almost dripping, and yet the cluster was in good shape.

3. I certainly would not hesitate to put the absorbents above the cluster, whenever a day comes that will allow them to fly. Be sure and do not allow a draft of air to pass through. It is also a good plan to reduce the number of combs to the absolute requirements of the bees, as the more cold air you have about them, the less chance there is for evaporation.

Don't move your hives for winter, as you cause drifting, and you are likely to lose bees thereby. That is very important. Do not brush the snow away, except when you expect them to have a flight. Don't disturb them in cold weather.

HONEYDEW

Will honeydew granulate if left exposed to cold weather, say leave it in outbuilding during winter?

I wanted to hold some over for feed next spring after bees can have daily flights.

Honeydew is about all we got down this way. Fall flow filled up brood chambers in nice shape. ILLINOIS.

Answer.—As far as we know, honeydew granulates in cold weather. But there is no objection when it comes to feeding it to bees in spring, if they have access to water. They will take it and use it without trouble. We often feed granulated honey to bees in spring when they can fly every day.

If you don't want to feed it in the granulated form, you can easily melt it when spring comes.

Sturtevant Resigns

Dr. A. P. Sturtevant, who has been in charge of bee disease investigations in the United States Department of Agriculture, has recently resigned to become Assistant Professor of Bacteriology in the New York Homeopathic Medical College.

A LEADER IN BEEKEEPING IN CHINA

By W. H. Feng.

Y. T. Woo is a founder of modern beekeeping in China. He bought a few straw boxes of Chinese native bees about twelve years ago. Two years later he bought modern equipment and several bee books from America. So he immediately began to transfer the bees from old hives to the modern ones. At that time I was a helper with him, as a student for learning beekeeping. We studied all the American bee books and bee magazines published. We knew really little about bees, either knowledge or practice. We only had thirty-five modern colonies of bees at that time.

It was a great misfortune to us that in 1915 there was a particularly cold winter. The temperature was several degrees below zero. The bees were prepared outdoors by double-wall hives and packed with dry straw on the top of hive and also the space inside the hive for preserving the winter heat of the bees. The amount of the food before winter was about thirty pounds and the colony had normal force, good enough for wintering if the weather condition had been favorable. In January we examined the apiary and found that twenty-five colonies out of the entire yard were dead, and only ten hives left were strong enough to build up the force for the spring honey-flow. We were greatly disappointed. We did not know at that time, that there are several factors which are responsible for success in wintering bees. They are, all American beekeepers know, first, preparing sufficient young workers before the winter; second, plenty of food of good quality; and third, preserving the heat. I believe the wintering will not succeed if any one of them is neglected.

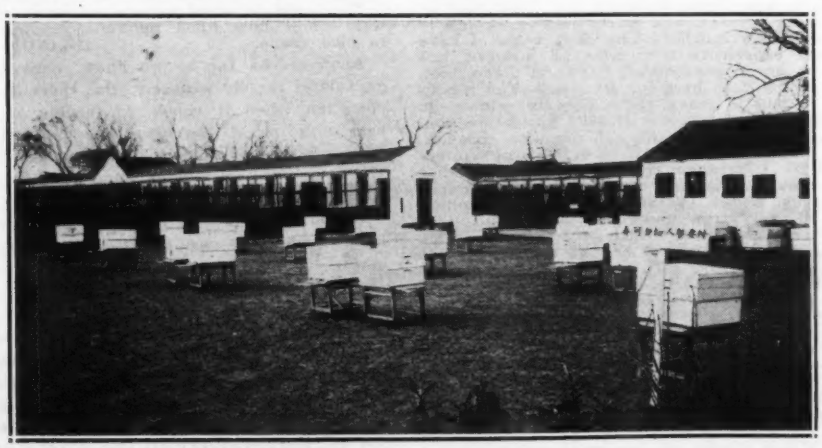
In 1918 Mr. Woo visited Japan and brought thirty colonies of bees home. They are Italian bees, but not purely bred. Then we changed all the Chinese native bees to Japanese bees, in that fall. The Japanese bees are bigger than Chinese bees and have more ability for producing honey, and also less swarming habit than Chinese bees. I personally knew that the Chinese bees are not serious to sting. This is their only merit.

In 1919 I came to America specially to study apiculture. In 1920 I took a short course of beekeeping in the University of Wisconsin. I bought four Italian breeding queens, mailed them to China from San Francisco. Only one was alive when reaching destination. Then Mr. Woo devoted all his time to breeding

Mr. H. W. Feng.

queens from this one queen. He found that the pure Italian is the only one for producing honey and also easy management. In the summer of 1920 I spent three months at A. I. Root Company for practicing bees and bottling honey, etc. I also visited many commercial apiaries in different states. I shall return home very soon to take charge of Mr. Woo's apiary, which will become a Government experimental station as a center for developing the beekeeping industry in China. At present there are more than 400 colonies of bees in Mr. Woo's apiary. The bees are located in different areas several miles apart. They are also adapted to migratory methods by boat, as the transportation in China is easier by water than highway. I believe later we will increase the bees to several thousands for distribution to all parts of China.

They have numerous varieties of honey plants in China. Clovers and alfalfa are widely distributed in western provinces. Cotton and buckwheat are cultivated extensively in the northern parts and also along the coast. Fruit trees are planted everywhere in the country. Yellow mustard, the only honey plant in springtime, is seen in thousands of acres in the provinces of Kiangsu and Chehkiang; the duration of the mustard honey-flow averages about two weeks, or a little longer if the weather is favorable. The honey is light color, good quality, but sometimes too thin even when the combs are all sealed. A few years ago a noted American botanist visited China and observed that China is a most favorable country for keeping bees, because it has numerous good honey plants in all parts of the country and suitable weather conditions throughout the seasons.



Apiary of Y. T. Woo, at Tongkow, China.

"THE HONEY-BOOTH HOLIDAY SERVICE"

Were you ever one of the last minute shoppers on Christmas eve? Then you know what it means. Last holiday time, I rushed frantically from one store to the other in search of a suitable gift for a little cripple girl. Imagine my delight, when I ran pell-mell into a "Honey Booth" in our general store. Here, in gift boxes, were cakes of honey wrapped in paraffined paper and then in holly paper, and also fancy bottles filled with extracted honey, and these were cleverly wrapped like bon-bons and stored away in holly gift boxes. Just the thing! I immediately pounced upon a box that contained three boxes of honey in the comb form and three bottles of the extracted. Then the girl in charge of the booth tied the parcel with silver string and tucked a little gift card for the name of the giver and the recipient.

This booth did not cost the owner much, and proved a money maker indeed. This holiday season will find one of his booths in each of the stores of our town and many in the surrounding towns and cities. He has already purchased the Christmas wrappings and tags and decorations from a wholesale house, in such large quantities which has made the rate so low that he can afford to be even more liberal than before.

What have you arranged to make the holidays a money maker for your business? Are you going to take advantage of the gift season and apply it to your business?

Mrs. Luella B. Lyons.

CONSERVATION OF WAX BY THE BEES

By Bruce Lineburg.

ANY organization should operate at a minimum of waste or it fails of its full purpose as an organization. That a colony of bees, as such, exhibits an efficiency not possible to the individual has been pointed out by many writers. In this respect, however, anatomical adaptations of the worker and the queen to their duties probably have received greatest attention. The effects of division of labor among the workers, the economy of the six-sided cell, as well as a comb so constructed that the midrib does double service as bases for the cells have likewise come in for their share of attention on the part of students of bee activities. In fact one might assert that these features have received so much consideration in this regard as to exclude from our attention other matters of great importance from the standpoint of bee-economy.

In the May number of this Journal, page 235, the writer called attention to conservation of the material entering into the formation of brood cappings. In the article the assertion was made that the material entering into brood cappings is taken largely from the combs themselves at the time cells are being capped and that a large part of this material is replaced on the combs—that is, stuck on the edges of nearby cells, at the time of the emergence of the bees. Since the publication of this article this statement has been confirmed by a number of additional observations.

At the time of the writing of the previous article the writer was not aware of the fate of the bits of cappings which fall to the bottom-board during the emergence of the young bees. At that time the idea was held that perhaps here was a bit of unavoidable waste; a situation comparable to that of the painter who drops some paint to the ground. Whether these bits were gathered up and used, or whether they were carried out of the hive was a point rather difficult to determine. Recent observations have been made which may throw light on the subject; at any rate they show clearly the disposition of somewhat similar materials within the hive.

An observation hive was used in which strips of comb were placed so that the sides of the cells were parallel to the sides of the hive and so that one could look into the cells from one side. Two pieces of these strips of comb slipped to the bottom-board, and these were allowed to remain on the bottom-board, since the removal of them would have disturbed the little colony. Under the hive proper was arranged a box for additional clustering space and for ventilation. The portion of the top of this box not covered by the hive proper was closed on one side by glass and on the other side by a wire cloth. This box, which had a larger cubic content than the hive proper, was occupied by quite a number of bees, which, after clustering, remained in the box for several days. Gradually this cluster thinned out and considerable wax in little lumps could be seen here and there about the sides of the box and on the wire cloth. A number of wax scales could also be seen sticking to the wire cloth and on the sides of the box, as well as on the bottom board. The wax scales were closely watched to see what would be done with them; and, although a number of bees were seen to catch scales when they were dropped by other bees, none were seen to pick up scales that had been dropped to the bottom-board. After observations extending over a week or more, the scales and bits of wax on the bottom and sides were still undisturbed. Then, at a time when hope of a solution to this problem had been almost given up, the wax began to disappear. Careful watch was now kept and in course of time workers were seen removing the bits of wax. Within ten or twelve days practically all of the wax scattered about the sides and bottom of the box had been removed. This wax was added to the combs already present or used in the construction of new

YES, 1922 PRICES

on lumber still determine the prices you pay for Muth's Bee-keepers' Supplies. But—

it begins to look like there must be an increase soon, as lumber has advanced decidedly while we maintain low prices

Association Secretaries: Write for our proposition on supplies.

WE RENDER WAX FROM YOUR OLD COMBS.

THE FRED W. MUTH CO.
"THE BUSY BEE MEN"
CINCINNATI, O.

comb. The strips of comb in the hive were extended down into the box, and this extension of comb into the box after a time prevented a view of the two pieces of comb which had fallen to the bottom-board. Before the view had been cut off, bees were seen at work on these pieces of comb, but no special significance was attached to this fact. When the ventilator box was opened six weeks later, however, these pieces of comb were entirely removed.

This type of hive was obviously not designed fully to meet the needs of the colony. As the hive was particularly narrow, the upper corners were too far removed from the brood-nest, and, as soon as the first wave of comb-building had subsided, the workers began removing comb from the upper corners and using it for comb-building nearer the brood-nest. The colony was then fed, and, although this caused a temporary resumption of comb-building in the upper corners, reduction in the number of bees in the little colony soon necessitated the calling in of these advance comb-builders. Again they began tearing down comb in these upper corners and the material was transported to points nearer the brood-nest, where it was again used in the building of comb.

The tearing down of comb recalls to mind several instances which were noted some years ago. In those instances the bees were working on bits of empty comb left about the bee yard. Several workers were seen at work tearing the comb into bits. In these cases, however, the bees were loading or attempting to load the wax particles on their pollen baskets. The middle leg was used to pat the pieces already present on the pollen basket. Usually this served only to dislodge them.

The transportation of wax about the hive and its use a second time in comb-building involves not only the gathering up of wax scales which have been dropped and the tearing down of comb, but the destruction of foundation as well. This latter fact has been brought forcibly to the attention of all beekeepers who have attempted to have comb foundation drawn out, particularly if attempted in the absence of a suitable honey-flow. The one consolation that the writer had from these observations was the assurance that bees were not destroying his comb-foundation merely through misdirected energy, and that, although the foundation was torn down, the wax still remained within his hive, since it was used elsewhere in the building of comb. The observations also accounted for the removal of the lower corners of good brood combs, which later are often replaced by drone comb. These corners, particularly the ones nearer the entrance, are the cooler parts of the hive and also the more distant from the brood-nest. As a result, comb in these parts is most readily sacrificed, when other sources are not available to supply wax needed at points nearer the brood-nest or in the extension and capping of cells containing honey.

With the above in mind, the supplying of wax to the colony was naturally suggested. It was realized that such wax must be in suitable form if it is to be used readily by the bees. It must be supplied in thin flakes or as a powder. Several Germans report the using of wax powder which was obtained by treating the wax with alcohol. Powdered wax was not available, however, at the time of the experiments, so the flaked form was used instead. Hot melted wax was sprayed upon cool water, with the result that small, thin flakes were obtained. These were removed and placed in receptacles on the bottom board of the hive. Other positions may be more advantageous, but this matter was not investigated. Wax thus placed has been accepted readily and used in the construction of comb. Whether some modification of this or some other system of supplying wax will prove practical remains to be seen.

Maryland.

REGARDING THE PRICE CUTTER

We hear so much about price cutting nowadays that it is refreshing to find a beekeeper who does not fear the price cutter. I have been visiting a beekeeper in Wisconsin who sells his honey through the regular channels of trade, offering the grocers a 25 per cent discount and selling on the usual basis of 30 days net, with 2 per cent off for cash. He furnishes the grocer with honey leaflets and makes a window display. A 5-lb. pail retails for $1.25 on his market, although there are many small beekeepers who are selling their honey at figures considerably under this price.

During the first part of fall, when the honey crop begins to move heavily on the market, the price cutter makes a serious impression on business, but after his honey is disposed of, the beekeeper who has entered the regular channels of trade, in a businesslike way, finds that his honey constantly and steadily moves off the grocer's shelves at a profit to him and to his dealer.

It is efforts of this sort which must become multiplied many times before the honey market assumes a stable aspect. We cannot expect beekeeping to attract a higher type of people until some stability is evident in the market situation and without a constant addition of new members to the ranks of beekeepers we cannot expect to build an industry with any degree of rapidity.

The fact that well-balanced attempts at profitable marketing always succeeds makes it obvious that the faults in our market system are not due to any weakness in the product, but rather to a decided weakness in the intelligence of those who make honey production their business.

G. H. Cale.

You can have cash for your wax and old combs or cappings at the market price, or we allow a little more in exchange for supplies

Write for our terms and prices

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W. T. FALCONER MFG. COMPANY, Falconer, (NEAR JAMESTOWN) N. Y., U. S. A.

"Where the BEST Beehives come from"

FLORIDA NOTES

By A. H. Mecklin.

If you contemplate coming to Florida, which, being proverbially known as the "land of sunshine and flowers," is really a fine section for honey production, do not make the mistake I did and locate too near large bodies of water.

When I came to Florida I thought along with the honey I expected to produce, I'd just as well get right on the bay and have plenty of fish and oysters, too, both of which are as delightful to have as honey; so I located right on the shore of Escambia Bay, a body of water about three miles across, being a sort of prolongation of Pensacola Bay.

Along the early days of May I noticed that there seemed to be about two bees leaving the hive to one returning in the afternoon. My first thought was that, elated with the abundance of sweets obtained in the big swamps of Magnolia, Bay and other forest trees, just across Escambia, they were merely delaying their home journey until late twilight, and I had been unable to see them. But this was not the case. When I undertook to extract my share of their store along in July I found little honey, and practically only a corporal's guard, so to speak, of my bee colonies. No indications were in evidence of worms or other pests, and I was very much mystified, until one evening I was out about half way in the bay fishing, and discovered the solution. It was nearly sundown, and the sea was perfectly calm, when I noticed bees dropping in the water around me, an occasional one at first, but quite a shower presently as the twilight deepened. They were heavily laden—overburdened with their load and, unable to make the trip across, dropped in the sea and were drowned.

Upon inquiry among neighbors, I found that no one right along the bay shore undertook to raise bees, and, strange to say, they could give no reason. Back a couple of miles, however, it is different.

I came to Florida for the express purpose of growing honey, and the discovery I made out fishing, changed my plans entirely, of moving back to the middle states. I merely moved away, from the fish and oysters about three miles back, and have had no trouble.

Aside from the wild flowers which abound in great plenty all over this (Santa Rosa) County, the recently-started industry of Satsuma orange growing, on a large scale, furnishes a magnificent food supply for bees. Indeed, I have in mind a bee grower who rents the privilege rights from a large orange grower, and moves his colonies thither during the blossoming season. He thus raises what he calls Satsuma honey, which brings an interesting premium on the market, being a deliciously orange flavored variety. Thousands of acres of Satsuma are being planted on the cheap, poorer lands, and by and by you will doubtless hear of Satsuma honey demanding a favored place on the market.

Another source of bee food destined soon to prove of increased value to the bee producer, is the blueberry. This berry is native, the swamps and woods being liberally sprinkled with them, but it has been demonstrated that when transplanted into better and more cultivated soils, and given attention, they more than double in size, and far excel in flavor, while the blooms, which on the wild berry are not so prolific, on the cultivated ones are obviously more abundant. Bees are very fond both of the blueberry and the Satsuma orange blossom, and bee culture, little known in this section, is destined to grow by leaps and bounds.

New Jersey Beekeepers' Convention

The annual convention of the New Jersey Beekeepers' Association will be held on January 17-18, 1924, in Trenton, in connection with Agricultural Week activities.

Mr. Jay Smith, a noted queen breeder of Vincennes, Ind., has been engaged as one of the speakers.

Elmer G. Carr, Sec.-Treas.

MONEY SAVED

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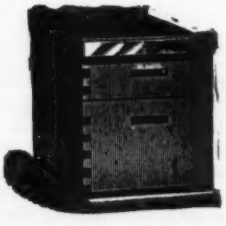

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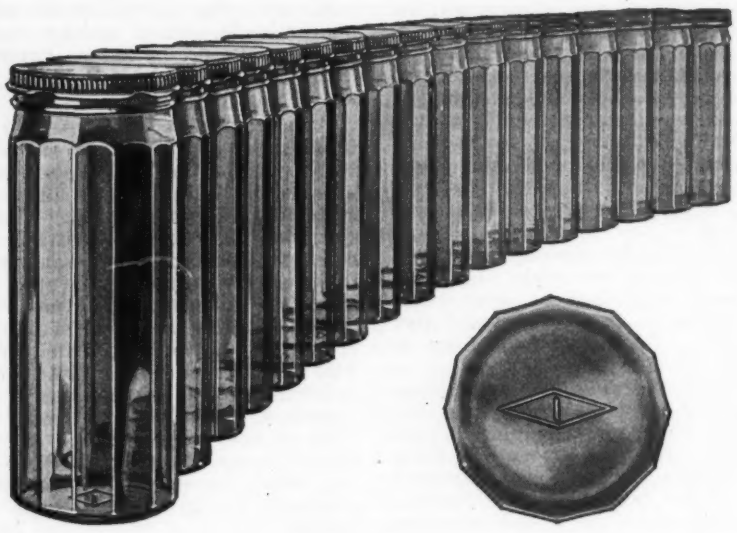

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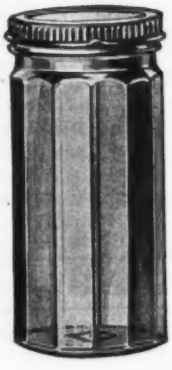

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"Diamond I" Honey Jars in 1 lb. and ½ lb. sizes, are furnished complete with tight sealing caps and are packed in 2 dozen Corrugated Reshipping Cases.

Most Beekeepers Supply Houses can fill your orders promptly. In case you are unable to secure "Diamond I" Honey Jars from your local distributor, write us direct.

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YORK'S BEES and HONEY

Ask for free sample copy and special offer. Only bee paper in Pacific Northwest. Edited by

GEORGE W. YORK,

Box 895, Spokane, Wash.

"MAKE TOAST YOUR BREAKFAST FOOD—WITH HONEY"

By G. H. Cale.

In connection with the "Eat More Wheat" campaign, stimulated by the Washburn-Crosby flour people, there is an attempt, on the part of the American Bakers' Association, to increase the demand for toast at the American breakfast table. This campaign, started September 1st, is slowly spreading to the bakers' trade and is of such an interesting nature that it will no doubt receive widespread support.

Toast is a well-known food at American tables, but is not as extensively used as it might be, because of the difficulty of making good toast. There is no method of toast making surpassing the use of the electric toaster, which gives a golden brown color to the bread, very attractive to the eye and appealing to the appetite.

Of every one hundred homes using electricity only twelve have electric toasters. The "Eat More Toast" campaign plans to increase the use of bread for toast by supplying the other 88 of the 100 wired homes with toasters. Arrangements are being made with manufacturers and distributors of electrical supplies so that the baking companies can sell electric toasters at wholesale. They will be able to supply them to their customers at $3.50 to $4.00, with the help of women canvassers. Every home buying a toaster will increase the consumption of bread on an average of three loaves a week. Manufacturers of jelly and jams and other food materials which can be served to advantage on toast are anxious to help in every possible way in this campaign. Electrical companies are especially interested since the use of toasters gives them an outlet for electric current at a time when they have an off-peak load which can be disposed of to advantage.

Here is an excellent opportunity for honey producers and honey distributors to tie up with a national advertising campaign and tremendously increase the consumption of honey in their respective regions. It ought to be easy for those interested to get their local bakers to use advertising material and descriptive matter concerning honey and its uses. It is a peculiar fact that toast, since it is somewhat porous, and easily soaked, readily takes up extracted honey, making a delicious combination for breakfast consumption. Here is an excellent chance for beekeepers to "hitch their wagon to a star" by capitalizing the largely-circulated slogan "Make Toast Your Breakfast Food," by adding the words "With Honey."

Those wishing further information about the "Make Toast Your Breakfast Food" campaign can secure a prospectus from L. A. Rumsey, 1135 Fullerton Ave., Chicago, Ill.

HONEY AND BEESWAX IN MADAGASCAR

(From Consul Alfred Theo. Burri.)

Bees in Madagascar pilfer principally the flowers of numerous plants produced without being planted; it is, therefore, impossible, without a copious list, varying with the flora of the region, to specify with any degree of precision particular flowers from which the honey is harvested.

Apiculture in Madagascar is not an organized industry; the larger portion of the product is gathered in the forest by the natives, who search for it in the tree cavities, where the bees usually lodge themselves.

However, frequently enough, the natives of the forest regions place on the trees, trunks of trees hollowed out, and waxed to draw the bees, wooden plates, permitting a passage for the bees, block up the ends. The proprietors, from time to time, gather the honey combs. Often the swarms that have entered these primitive hives are transported to the villages.

The wax is melted up directly over a slow fire by native gatherers. Though not an invariable rule, dealers and commercial agents collecting wax from native gatherers often remelt same and always directly over the fire.

The odor of the wax is not due to the flora, but to the primitive methods employed by the natives in its preparation; often it is kept a long time before being melted, and is more or less mixed with animal or vegetable refuse, whose decomposition is hastened by the heat.

Modern apiculture is not practiced in the Colony except in a few isolated cases. The Department of Agriculture, however, is of opinion that a considerable development is possible in view of the fact that the flora is very abundant, and covers millions of acres in the middle east of the island.

There are practically no modern apiculture appliances or accessories in use, largely because there is no one—aside from a few isolated individuals making their own apparatus—to utilize same.

Any figures of honey production, in view of conditions outlined above, would be impossible to compile; and the Department of Agriculture does not attempt to make even a rough estimate. Gathered largely in the forest regions, it enters into the direct consumption of the natives. On the other hand, almost all the wax is exported.

Minnesota State Meeting

The beekeepers of Minnesota will meet in Convention at the University Farm, St. Paul, December 10 and 11. Our editor will be there and the following noted men have promised to attend: E. G. LeStourgeon of San Antonio, Texas; Ed. A. Winkler, the Hubam sweet clover man, of Joliet, Ill., and George H. Rea, of Medina. A big attendance is certain. Programs may be obtained by writing to Prof. G. C. Matthews, College Farm, St. Paul, Minn.

35th Annual Meeting

The 35th annual meeting of the Ontario County Beekeepers' Society will be held in the Court House, Canandaigua, N. Y., Friday, December 7, at 10:30 a. m.

Death of Alfred Cook

Alfred N. Cook, one of the leading beekeepers of Henry County, Illinois, died at his home near Ontario on October 18, 1923, at the age of 72 years. He is credited as being the first to introduce sweet clover into Henry County. He was among the first to introduce Italian queens into the same county. Shortly before his death he built an incubator for use in his queen-rearing operations.

His son, Alfred, Jr., will continue the beekeeping business established by his father.

Chicago Northwestern Meeting

Chicago, December 7-8, Great Northern Hotel. A fine program has been prepared. C. P. Dadant, Geo. S. Demuth, E. A. Winkler, E. S. Miller and others are expected to speak. Everyone in the Chicago district is cordially invited.

Cold Weather Brings No Worries

with HONEY in your automobile radiators.

Honey, mixed with water, makes one of the best anti-freeze mixtures known. It does not evaporate like alcohol, and, after once filling, it is only necessary to replace the water that is evaporated.

TO MAKE A PROPER MIXTURE

For localities where the temperature _____

This is the interesting way our new advertisement for honey as an anti-freeze mixture reads. Attractively printed in a convenient size for distribution to prospective buyers.

$1 per 100; $2.95 per 1,000.

With name and address, $1.00 extra.

American Bee Journal, Hamilton, Ill.

What if you could make your best colony yield your average? Think of the importance of the queen and try

FOREHAND'S THREE-BANDS
the THRIFTY kind

A success for over a quarter of a century.

W. J. FOREHAND & SONS,
Fort Deposit, Ala.

FREE! ART PICTURES

of Ideal Chickens in Beautiful Natural Colors, 8 x 11 in., suitable for framing. Given only with Poultry Tribune—every issue. World's Great Poultry Paper. Chuck full of money-making ideas, articles, news by foremost poultry authorities. Pub. monthly, 80 to 120 pages. SPECIAL OFFER:

5 Big Trial Issues 25c
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Send stamps or coin today.

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BEE ESCAPE SAVES HONEY TIME MONEY

For Sale by all dealers
If no dealer, write factory

R. & E. C. PORTER, MFRS.
Lewistown, Ill., U. S. A.

(Please mention Am. Bee Journal when writing)

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MACK wonders what the season of 1924 is going to bring, the way orders are rolling in for queens. Customers who bought queens sparingly the past season are now favoring us with their orders for lots of 50 to 100.

They are pleasing others and we know they will please you.

Estimate your 1914 requirements and get our quotations. Catalog, describing methods of rearing, strain etc., sent free to anyone upon receipt of their name and address.

HERMAN McCONNELL,
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BEEKEEPERS WE MANUFACTURE DOVETAILED HIVES, HOFFMAN FRAMES, SECTIONS AND SHIPPING CASES

Our hives are made of best grade White Pine, cut accurate and smooth to standard measure. Sections are made of Basswood, polished on both sides. There are no better made.

We carry a complete line of everything in the apiary. Our shipping facilities are as good as can be found anywhere. We want your business. We guarantee prompt and satisfactory service. Price list free.

MARSHFIELD MANUFACTURING COMPANY, Marshfield, Wis.

BEE SUPPLIES

We carry a full line of supplies that are needed in a modern apiary. The best money can buy. Give us an opportunity to submit our prices to you before placing your order for next season.

Send us your name and address and we will mail you a copy of our new catalog, which will be ready for mailing January 1st.

AUGUST LOTZ COMPANY
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"Our Backdoor Neighbors"
By Frank C. Pellett

A warm hearted book that children love
and older folks as well

Rich in beautiful pictures

The stories he tells are vivid and fascinating, for the author has lived close to nature and shares her secrets. He talks the language of the woods, and holds the attention of any reader, regardless of his age.

A Fine Gift for Nature Loving Friends

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AMERICAN BEE JOURNAL, Hamilton, Ill.

THE OLDEST BEE MAGAZINES AND BOOKS

By Alois Alfonsus.

(Translated by George E. King, University of Illinois).

Doubtless from the beginning, the beekeepers of all ages have striven to communicate to the public that which they have learned from their association with the bees. Aristotle (born 384 B. C.) was the first who wrote a zoological work giving in it information concerning the bee. He described the queen as the mother of the colony, the egg-producing individual and her development. He also knew of the killing off of the drones and of various bee diseases, among them the stinking foulbrood.

The Romans were masters in bee culture. P. Virgilius Maro (Virgil) in his great agricultural poem or Georgic, devoted a whole section to the bees. Pliny treated of the bees in his natural history, and in addition numerous other Roman writers have given accounts of their knowledge of them.

At the end of the thirteenth century Peter Crescentius, an Italian, wrote, twelve books on agriculture. A translation of this work, in one part of which there was a discussion on the bee, was published in the German language in the year 1474, in Augsburg. It was probably the first book on bees after the establishment of the printing press, which was invented in the year 1450. The first book on bees to be written and printed in Germany was by Thomas Cantipratensis. Like almost all of the works of that time, it was written in Latin and bore the title: "Apiarius s. liber, gui dicitur bonum universale, de proprieta tibius apum."

The first bee books written in the German language, "Grundlicher und Nutzlicher Unterricht von der Wartung der Bienen" (Fundamental and useful instruction on the tending of bees), was by Nikol Jakob, and was printed in 1568, at Goerlitz, in Silesia. The science of bees underwent an entire change because of the increased knowledge added by the investigations of Swammerdam and Reaumur, the latter of which is the inventor of the thermometer.

Swammerdam, a highly gifted investigator and distinguished anatomist, died in the year 1680. His work, "Buch der Natur" (Book of Nature), with its wonderfully executed copper engravings, first appeared in the year 1734, long after his death. In the year 1752 the Book of Nature was translated into German by Boerhave. Originally it was written in Latin.

Undoubtedly the most important investigator of the old era was the blind Genevan investigator, Francois Huber, whose "New Observations on Bees," provided with beautiful copper engravings, was at first printed in 1796, in Paris. The merits of Huber have already been presented in considerable detail in the American Bee Journal. His work was translated into the German,

English, Italian and Danish languages.

Of the writers on apiculture of the eighteenth and nineteenth centuries prior to the invention of the movable-frame hive, Schirach, Janscha and Baron von Ehrenfels are especially worthy of mention.

Since the invention of the art of printing there have been published, in all parts of the world approximately 5,000 apicultural works. No other branch of agriculture is so abundantly supplied with literature as is bee culture.

Even at an early period the necessity for bee journals was entirely obvious. The first of them were publisher but once a year. During the years 1766-1770 Pastor Schirach edited the "Discussions and Practices in the Association for Economic Keeping of Bees in a Building"; and Eyrich edited the "Discussions and Practices in the Frankish Economic Beekeeping Association" (1770-1773).

The Proceedings of the Beekeepers' Association of the Electorate of Saxony was published from 1775-1776, just as was the the"Yearly Announcement of the History of Bee Culture with Reference to Saxony," by J. G. Wilhelmi.

The first real bee magazine, the Brunswick Magazine, appeared in the year 1792, continuing during seventeen years. Likewise the Journal for Bee Lovers was issued monthly by Busching and Kaiser during the years 1799-1805.

L. Wuster's Journal for Observations and Practices in Bee Culture appeared 1805-1807. Then, in the year 1834 a very important bee journal Monthly Newspaper for the whole of Bee Culture, was issued. Vitzthun, a simple Bavarian schoolmaster, had undertaken this hazardous enterprise. As Vitzthun died two valliant men, Karl Barth, M. D., and seminary Prefect Andreas Schmid, founded in Eichstadt, the "Bienenzeitunz" (Bee Journal), which continued to appear uninterruptedly up to the year 1898, and with the founding of this journal a new era for bee culture was ushered in.

In No. 3 of the "Bienenzeitung" we find that Dr. Johann Dzierzon was already one of the contributors to it, and later on in the series are many of the important men of beekeeping, such as Pastor Kleine, Baron August von Berlepsch, the scientists and investigators, Professor von Siebold and Dr. Leukart, Dr. Donhoff and Pastor Schonfeld. Furthermore, the names also of Johannes Mehring, the inventor of comb-foundation, Major von Hruschka, the inventor of the honey extractor, and many other important men appear among the contributors. The "Bienenzeitung" played a direct part in the affairs and spirit of the beekeepers and served as the medium for their intercourse with each other. It directed the way for the onward progress of bee culture, and its founders themselves have rendered an imperishable service to the beekeeper's of the whole world.

The oldest German bee magazine at the present time is the "Rheinish Bee Journal. The oldest in Austria is the "Bienen-Vater" (Bee-Master), of which I had the honor to be editor for more than twenty years.

ILL-ADVISED PUBLICITY

By Samuel Cushman.

One might infer from reading the article with the above title by Robert S. Merrill in the November issue of this Journal that the term **foulbrood** was made use of by the writer of the Chicago Sunday Tribune article of January 7. He quotes from the quoted remarks in that article by Samuel Cushman of the Cook County Beekeepers' Association. The fact is that in furnishing news matter to Chicago and Cook County papers regarding the aims and object and the numerous meetings of our association during the last two and a half years we have always avoided the term **foulbrood** and substituted **bee disease** instead.

Success Due to Publicity.

As the Cook County, Illinois, Beekeepers' Association was formed to fight bee disease in this county, and depended on Chicago newspaper publicity to secure attendance at the meetings, support of the beekeepers and of the voters and the members of the State Legislature, it was impossible to conduct our two years' campaign without making the public know that bee disease imperiled the local honey producing industry. Without these newspaper notices it would have probably been impossible to gather ninety persons at the first call to organize, or to secure by frequent meetings within ten months 125 members at $1.00, or 100 the second year at $2.50 each.

The Least of Two Evils.

Possibly in Mr. R. S. Merrill's own locality beekeepers have been so active in controlling foulbrood that there is no need to inform the public that bees are ever affected by disease. Of the two evils which would he choose—to make known to the public the great importance and money value of the industry and the danger of its destruction by disease that ample State inspection and control could overcome, or let foulbrood spread and tolerate the apiaries rotten with foulbrood, with consequent loss and danger to all other beekeepers, and cover up the fact for fear it would hurt the sale of honey?

Larger Appropriation Secured.

As the combined influence of the State and County Beekeepers' Associations with newspaper publicity has secured a larger appropriation for inspection, we hope the time will soon come when bee diseases will be practically eliminated from this State.

Chicago.

WANTED 500 MEN AND WOMEN

To buy our guaranteed bees and queens for spring delivery. Booking orders now. One 2-frame nuclei, $3.75; 25 or more, $3.50. One 3-frame nuclei, $5.00;, 25 or more, $4.75. Queens free if 50 or more are taken. Package bees same price. Queens, one untested queen, $1.50, 25 to 50, $1.25 each. Our early order discounts from the above prices will interest you; get them before placing your order.

W. H. MOSES & SON,
Lane City, Texas, U. S. A.

CARNIOLAN and ITALIAN QUEENS $1.00

J. E. WING,
San Jose, Calif. 155 Schiele Ave.

WITH TOAST
OH BOY!

Did you ever try it? Honey on toast? If you haven't, you've got a big treat in store. One young woman said, "I had become tired of eating plain toast, nor did it appeal to the children any more. But, once I added honey, my whole family kept me busy serving. Honey is certainly delicious!"

Try it tomorrow morning! All quantities of honey from one half-pound glass at__cents up.

CHARLES JENSON
AUBURN PARK
CHICAGO, ILL.

We have had a series of 20 model advertisements of honey prepared by an advertising specialist. This series will provide the beekeeper with suitable copy for his newspaper advertising for all occasions. Simply change the name and address on the ad to your own, and it is ready.

The above is a sample of this series. The entire series of 20 postpaid to any address for 50 cents.

We offer a full line of selling helps —labels, signs, folders, etc.

Everything in printing for the beekeeper.

AMERICAN BEE JOURNAL,
Hamilton, Illinois.

MERRILL REPLIES

Referring to the editorial comments on page 559 of the A. B. J.:

I could have included in my article the daily rate of egg laying in each of the six hives during the period mentioned. I did not do so because I had in mind an entirely different point to bring out. We have figures which show that there is no correlation between the number of bees in the hive and the amount of honey which they will gather. When we wish to learn why some bees gather more honey than others, we are forced then to look around for some other reason than mere numbers. We have data here at this station extending over four years' time which shows that bees having the largest stomachs store the most honey during the season. Naturally we wonder what added benefit this large stomach is to the bee besides allowing it to bring in more honey on each individual trip. If it can bring in this increased load of honey with less effort than the bees not so fortunately provided, then in the light of what we know of the factors which regulate a bee's life, we would naturally expect those bees to live longer than the others. This is the point which I wished to convey in my article.

The Editor's first objection is that "A colony which had the opportunity to rear a large amount of brood would show more bees at the end of the time than one which did not rear as much, and would, therefore, pass for having longer-lived bees."

As a matter of fact, hive No. 1, which showed a loss of 80.5 per cent of its bees, ranked second in its rate of egg laying. The one that ranked first in rate of egg laying ranked second in amount of honey stored and last in rate of bees that died. The second case would seem to bear out the editor's contention, but the first one is so far the other way that, taken with results from the other hives, it shows that there is no correlation between the amount of brood reared and the length of life. It is stated that on the other hand the colony which reared less brood would spend less honey and would have opportunity to show a greater surplus, though its actual harvest might not be as great as that of the other colony. In answer to this I would state that colony No. 3, which ranked high in the carrying capacity, stood third in the amount of brood reared during this time, yet gathered the largest amount of honey. Again there is no correlation between brood and honey and length of life.

The suggestion for making a colony queenless throughout the duration of this experiment appears to me to be one that would end disastrously, and the cry would be immediately raised that our conditions were not normal. The editor says: "A colony whose bees would be slow to work might be liable to have longer-lived bees and harvest less honey per head." Our bees which harvested the least honey per head worked so hard during this time that they had a high mortality. He also says that "I have always considered that the length of life of bees is due to the more or less risk that they run during the working season." Our data show that owing to the location of our nectar sources, the bees from the college apiary must all be working in practically the same fields at the same time, consequently they would all be working under the same working conditions, which would seem to me to offset the last objection. The objection that "those that would come home readily in cloudy weather might show better in length of life and poorer in results," is not borne out by the data, because it is shown that those bees which can come home easiest, such as those with advantageous physical characters, not only live longer but give better results.

In my article I stated that these points should be taken into consideration in selecting bees for breeding purposes. The editor agreed with me and said it coincided with Dr. Miller's idea. I had no intention of promulgating a new theory. It has been the history of beekeeping that we first adopt advantageous practices and then later learn why they are advantageous. In the case of wintering bees the best practices were practiced long before we knew why they were beneficial.

J. H. Merrill.

The Jumbo—the Cheapest and Best Big Hive

Cheapest—

Jumbo Frames cost only ½c more than the Standard Hoffman Frame.

Jumbo Bodies but 15c more than the Standard 10-frame Body.

And a set of 5 K. D. Jumbo Hives with M. C. complete but $1.25 more than 5 Standard M. C. 10-frame hives.

Best—

Jumbo meets every requirement for the producer wishing equipment larger than Standard.

Jumbos fit regular 10-frame equipment, are therefore used with greatest efficiency and economy in well organized apiaries.

Plenty of brood and storage space.

WEIGH THESE FACTS CAREFULLY AND USE JUMBOS FOR BEST RESULTS

THE A. I. ROOT CO., COUNCIL BLUFFS, IOWA

Crop and Market Report

Compiled by M. G. Dadant

The inquiry to reporters this month was to determine the average price, retail, wholesale and jobbing, obtained by beekeepers in different sections on grade and different size packages.

The very astonishing and much depressing thing about these reports was the exceedingly great variation in retail prices obtained by beekeepers in different sections of the country.

For instance, taking the first line in the table below, which has to deal with retail white honey, the variations were as follows:

Sixty-pound cans average price obtained 15c, highest price obtained 25c, lowest price 10c. It seems by this that the variation was 250 per cent from low to high.

The same is true in the 10-lb. pails, which sold at an average price of $1.93, with the high price being $3.25 and the low price being $1.25. Nearly 300 per cent difference.

In the 5-lb. pail the average was $1.08, with the lowest of 70c and the highest of $1.75.

In the 2½-lb. pail a person would look for a little less variation on account of the amount of labor involved and the cost of the tin. But the variation was still greater here, the average being 51c, the highest price being 80c and the lowest being 25c, or a little over 300 per cent between low and high.

In the 1-lb. jar there was not quite as big a variation, although it was almost as hopeless, since the average was 32c and the lowest price obtained was 20c, the highest being 45c, or 200 per cent and more of variation.

The same variation ranges true throughout all of the grades and prices although, of course, it is much more marked in the retail price, since there was a larger number of reporters giving data on this.

The distance from market, the freight rates, and competition have something to do with the average price obtained for honey. However, there is certainly no need for a variation of as much as 300 per cent, and there is certainly something lacking on the part of co-operation among beekeepers when such is evident.

As an instance of the variation in prices and the result of wicked competition we quote a paragraph from one of our reporters in Michigan who is thoroughly disgusted with the retail honey market.

He states as follows: "Local producers here have shot the market, much jealousy and cutting on local retail markets. From $1.25 to $1.00, then 90c, later 75c, and now 65c for 5-lb tins of best white extracted."

It is increasingly evident that nothing lasting will ever be accomplished towards getting a uniform price for honey unless there is some sort of effort on the part of beekeepers in general to hold their honey for a remunerative price.

Some may argue that honey is worth double in the East what it is in the Central West. Yet the cards coming in from our reporters indicate that some of the worst offenders are located in the East and Central West, and some of the best price maintainers are in the Intermountain territory and California.

In the table below we are giving the average price as obtained by all of our reporters, not as an indication of the price you should get, but it at least should be an indication of the very lowest price at which honey should be sold in the size package and quantity noted.

Undoubtedly we have been thinking too much about producing a large crop of honey, about how to winter our bees with the least amount of loss, about controlling swarming, etc., and have not given any consideration to the marketing of honey.

It is true that the costs of marketing honey are a great deal more in the East than they are in the West, but even so, who can account for a variation of more than 300 per cent in the selling price between one party and another where the product is at least equal in nutritive value, appearance, cleanliness, etc.?

It is high time that beekeepers were getting down to "brass tacks" on the honey marketing proposition, that is to a process of figuring costs so that they can at least get a remunerative price for honey in retail lots or else lump the whole batch off to somebody who is in a position to market their honey in a satisfactory manner and at a satisfactory price.

By stating this we are in no way placing direct criticism on those of our reporters who have given in the low prices or the high ones. In many instances they are the victims of circumstances, of misunderstandings among neighboring beekeepers, etc.

However, there should be, and there is, a remedy somewhere for such a condition.

We leave the reader to study the table below for what it is worth. It has, without doubt, been illuminating to the writer to see the extent of variation.

HONEY IN PRODUCERS' HANDS

Reports coming in from all sources would indicate that before another month passes practically all honey will be out of the producers' hands and either in the hands of the consumer or of the middlemen, who will be quickly disposing of it to the ultimate consumer.

This is probably true now almost entirely of comb honey, which is in excellent demand and in very short supply.

These facts are another reason why honey should be sold at a good stiff price this year, retail.

Now would be a good time for many beekeepers to reform and set prices in keeping with the cost of their product.

Government reports show that West Indian honey is being sold to foreign countries at a net price to the producer of 6c per pound.

Without a doubt there will be as small a carry-over of honey through the 1923-24 season as there has been for a few years, and the market should be in a position in 1924 to absorb the first few lots of the new crop with eagerness. In fact, the barrenness of the honey market may give some cause for serious consideration to the arguments of some people who claim that there is not nearly enough honey produced now to warrant the maintenance of a steady market, but that the honey prices suffer through the fact that there is so little to offer during a large part of the year. Is this, or is this not, the case?

	EXTRACTED					COMB			BULK COMB		
	60 Lb. Cans	10 Lb. Pails	5 Lb. Pails	2½ Lb. Cans	1 Lb. Jars	First Grade	Second Grade	Culls	10 Lb.	5 Lb.	3 Lb.
Retail—White	$ .15	$1.93	$1.08	$ .51	$ .32	$7.00	$6.00	$4.25	$1.95	$ .90	$ .60
Retail—Amber	.13	1.70	.95	.44	.29	6.00	4.80	3.60	1.95		
Wholesale—White	.12	1.40	.80	.36	.23	5.80	5.20	3.70	1.60		
Wholesale—Amber	.12	1.37	.75	.32	.23	6.00	5.04	3.84			
Job, LCL—White	.12	1.40	.75	.30	.22	5.35	4.75	3.50			
Job, LCL—Amber	.11					4.60	4.00				
Job Car Lots—White	.10					5.00					
Job Car Lots—Amber	.08					4.00					

All prices f. o. b. shipping station.

CLASSIFIED DEPARTMENT

Advertisements in this department will be inserted for 5 cents per word, with no discounts. No classified advertisements accepted for less than 35 cents. Count each initial or number as one word.

Copy for this department must reach us not later than the 15th of each month preceding date of issue. If intended for classified department it should be so stated when advertisement is sent.

As a measure of protection to our readers, we require references of all new advertisers. To save time, please send the name of your bank and other references with your copy.

BEES AND QUEENS

NEW HONEY IN December—Atwater.

MERRILL'S QUEENS—$1.00 each.
R. E. Merrill, Muncy, Pa.

SEE our display advertisement on page 593.
Loveitt Honey Co.

HARDY ITALIAN QUEENS, $1 each.
W. G Lauver, Middletown, Pa.

BEES AND QUEENS at reduced prices. Cypress hives for sale. Write for terms.
Otto Diestel, Elza, Ga.

PURE Italian and Carniolan queens, the best of either race, $1 each. J. E. Wing.
155 Schiele Ave., San Jose, Calif.

QUEENS for the balance of the season of 1923. Write and get our prices.

O. P. Hendrix & Son, West Point, Miss.

SELECT UNTESTED three-banded leather colored Italian queens by return mail at $2. Orders booked 15 days ahead, $1.50. Send for prices on large orders. These bees hold Indiana record for comb-honey average per colony in a run of ten years.
Charles Kennard, Knightstown, Ind.

"SHE-SUITS-ME" queens the rest of the season, $1 each.
Allen Latham, Norwichtown, Conn.

BEES BY THE POUND; also Queens—Booking orders now. Free circular gives prices, etc. See larger ad elsewhere. Ault Bee Co. (Successors to Nueces County Apiaries); San Antonio, Tex. E. B. Ault, Prop.

SEE my display ad., page 593.
Jos Dalton, Bordelonville, La.

GOLDEN ITALIAN QUEENS—Producing bees solid yellow to tip from record honey gathering breeders. Package bees and nuclei. Circular 1924 ready.
Dr. White Bee Company, Sandia, Tex.

LATE QUEENS—I can mail queens any month of the year. Tested queens only after November 1st at $1.00 each for the months of November, December, January and February. Let me have your order; I have the queens now ready.
D. W. Howell, Shellman, Ga.

BOOKING ORDERS for 1924; 2-lb package 3-band Italian bees with select queen, $4.25. Guarantee satisfaction; no disease.
J. Allen, Catherine, Ala.

FOR SALE—100 stands of bees, with full equipment; also 15 acres land. Price reasonable. G. V. Sumner,
McMurray, Washington.

PACKAGE BEES, nuclei and queens, 1924. Write for descriptive price list.
J. J. Scott, Crowville, La.

PINARD'S quality queens and package bees. Now booking orders for 1924. Circular free. Yours for better bees.
A. J. Pinard, Morgan Hill, Calif.

GOLDEN Italian Queens for 1924, the big, bright, hustling kind; also a few 2-frame nuclei. Satisfied customers all over the United States. Write for prices.
E. F. Day, Honoraville, Alabama.

GOLDEN and three-band queens reared in separate yards; booking orders for 1924. Untested, one, $1.25; doz., $11.50. Safe arrival guaranteed in U. S. and Canada.
Tillery Bros., R. 5, Greenville, Ala.

I AM booking orders for spring delivery. 3-frame nuclei and queens at reduced price. Caucasian or Italian race. No disease. Peter Schaffhauser,
Havelock, North Carolina.

100 HONEY GIRL breeding queens free—Honey Girl strain world famed for most prolific queens, and record honey producers. Our $1000.00 St. Romain's Honey Girl will head our breeding stock. We guarantee highest quality at lowest prices. Golden and Golden 3-band. A card will bring our catalogue and prices on queens and packages and full particulars regarding our offer of breeding queens. We wish to place a high quality breeding queen with every beekeeper who is interested in our Honey Girl strain.
Cottonport Honey Girl Apiaries,
Cottonport, La.
Address to Hamburg, La., until April 1.

PACKAGE BEES AND QUEENS—Bright Italian. Two-pound packages with selected untested queen: 1 to 5, $4.75; 5 to 25, $4.60; 25 to 50, $4.40; 50 or more, $4.25, delivered. Selected untested queens: 1, $1.00; 12, $10.00. Safe arrival and satisfaction guaranteed; no disease, ship nothing but the best. 20% cash books order. Begin shipping April the 15th.
W. C. Smith & Co., Calhoun, Alabama.

FRIEND BEEKEEPER—We are offering for 1924 the same high-grade Italian queens we have furnished in the past, with an absolute guarantee for satisfaction. These queens are large, bright, gentle and prolific, easy to handle. Prices as follows: 1 to 30, 75c; 30 to 100, 70c; discount on large contracts. Tested queens, $1.50; 3-frame nuclei with young queen, $5.00; package bees, $2.00 per pound. Place your order now and be sure. We take great interest in our work, which insures good service, although we are not infallible; therefore we stand ready to make any and all mistakes good upon request. Yours for queen service.
Walker & Shaner, Scotts Station, Ala.

PACKAGE BEES, nuclei and queens. Pure bright three-band Italian, April and May delivery. Absolutely no disease. Get my prices and circular before ordering. Guarantee safe arrival.
J. L. Morgan, Apalachicola, Fla.

HONEY AND BEESWAX

SEE our display advertisement on page 593.
Loveitt Honey Co.

FOR SALE — White and amber extracted honey. Write for prices. State quantity wanted. Dadant & Sons, Hamilton, Illinois.

FOR SALE—Our own crop white clover and amber fall honey in barrels and cans; also white alfalfa in cans. State quantity wanted and we will quote prices. Samples on request.
Dadant & Sons, Hamilton, Ill.

FOR SALE—White honey in 60-lb. cans; also West Indian in 50-gal. barrels. Samples and prices on request. A. I. Root Co.,
23 Leonard St., New York City, N. Y.

BEESWAX WANTED—We need large quantities of beeswax and are paying good prices now. Ship to us at Hamilton, Ill., or Keokuk, Iowa, or drop us a card and we will quote f. o. b. here or your own station, as you may desire. Dadant & Sons, Hamilton, Ill.

1923 CROP clover honey in 60-lb. cans, also 5 and 10-lb. pails. Prices upon request. Sample 10c.
Sioux Honey Association, Box M. 26,
Sioux City, Iowa.

FANCY CLOVER HONEY in new 60-lb. cans 2 to case; new crop. Sample 20c.
D. R. Townsend, Northstar, Mich.

FOR SALE—Fox terriers, puppies, dogs.
Lorenzo Clark, Winona, Minn.

FOR SALE—Water white sweet clover honey in 5 and 10-lb. pails. Sample 15c.
Clyde V. Fisher, 1502 Cass St, Omaha, Neb.

HONEY FOR SALE—In 60-lb. tins; white clover, 13c, for immediate shipment from New York
Hoffman & Hauck, Woodhaven, N. Y.

FOR SALE—Very fine quality of raspberry-milkweed honey in new 60-lb. cans.
P. W. Sowinski, Bellaire, Mich.

HONEY FOR SALE—In 60-lb. cans. Dandelion and clover, clover and basswood. State quantity wanted. Quality unexcelled.
Edw. Hassinger, Jr., Greenville, Wis.

CLOVER HONEY in 5, 10 and 60-lb. cans. Write for prices.
Henry Price, Elizabeth, Ill.

FOR SALE—Comb honey at lower prices. Write H. G. Quirin, Bellevue, Ohio.

CHOICE extra fancy white clover honey in new 60-lb. cans; 120 lbs. net, $14.40. Sample 20c. Edward A. Winkler,
Joliet, Illinois, R. No. 1.

FOR SALE—Clover honey in 5- and 10-pound pails. A. L. R. Irish, Britt, Iowa.

FOR SALE—Spanish needle heartsease honey; fine body and flavor. Write for price. State quantity wanted.
F. W. Luebeck, R. 2, Knox, Ind.

FANCY CLOVER HONEY—5-lb. pails and 60-lb. cans. Write for prices.
Dr. R. S. Davey, Parish, N. Y.

FOR SALE—Choice white clover and milkweed honey in 60-lb. cans. Sample and prices on request. Ralph Lenosky,
East Jordan, Michigan, R. No. 5.

FOR SALE—Comb and extracted white clover honey. Extracted in 60-lb. cans, 5 and 10-lb. pails. Prices given on request. Sample 15c. F. W. Summerfield,
Waterville, Ohio.

FOR SALE—Basswood extracted honey.
Edward Hogan, Canandaigua, N. Y.

FOR SALE—Comb and extracted honey in small or large quantities. Prices upon request. Superior Honey Producers Exchange, Delphos, Ohio.

FOR SALE—80 cases fancy No. 1 white clover comb honey, $6.00 per case; 24 sections per case, 8 cases per carrier.
Edward A. Winkler, Rt. 1, Joliet, Illinois.

NEW CROP clover and buckwheat now ready. Send for sample.
John N. DeMuth & Son, Pembroke, N. Y.

FOR SALE—Choice extracted honey, white clover, basswood and sweet clover; very light and fine; 60-pound can, $9.00, 2 for $16.80; 5-case lots, 12c per pound; 5-pound pails, 6 for $5.00, 50 for $40.00. Sample 15c.
W. A. Jenkins, No. 20 Bluff St.,
Hamburg, Iowa.

FOR SALE—New white extracted clover honey in 60-lb. cans, 12½c a bound; 12 5-lb. pails, $10; 6 10-lb. pails, $9. Sample by mail 15c. J. M. Gingerich, Kalona, Ia.

FOR SALE—Choice clover extracted honey, 5, 10 and 60-lb. containers. Write for quotations. State quantity desired. Sample 15c. M. Larson, Box 144, Gardner, Ill.

FOR SALE—Comb honey at lower prices. Write H. G. Quirin, Bellevue, Ohio.

SUPPLIES

NEW HONEY IN December—Atwater.

SPECIAL PRICES—We are offering at specially low prices some very high grade material in shipping cases, frames, hives and miscellaneous which represent items we no longer carry regularly in stock or which have to be closed out to make room for new stock specially equipped to take Dadant's Wired Foundation. If interested, write for list; we can save you money.
Dadant & Sons, Hamilton, Ill.

HAVE YOU any Bee Journals or bee books published previous to 1900 you wish to dispose of? If so send us a list.
American Bee Journal, Hamilton, Ill.

ROBINSON'S comb foundation will please the bees, and the price will please the beekeeper. Wax worked at lowest rates.
E. S. Robinson, Mayville, New York,
Chau. County.

CONNECTICUT and Rhode Island headquarters for Root's Beekeepers' supplies.
A. W. Yates, 3 Chapman St., Hartford, Conn.

ATTRACTIVE LOW PRICES—Write us for list of odds and ends, shipping cases, hives, etc., first grade, priced to save you money.
Dadant & Sons, Hamilton, Ill.

WESTERN BEEKEEPERS—We can demonstrate that you can save money on buying bee supplies of best quality. Write for our latest price list.
The Colorado Honey Producers' Association,
Denver. Colo.

FOR SALE—Get our special prices on tin, glass and paper honey packages. Shipments from Detroit, Chicago or Grand Rapids.
A. G. Woodman Co., Grand Rapids, Mich.

SUPPLIES—F. A. Martiny, New Orleans, La., distributor Root's quality bee supplies, Airco foundation, glass and tin honey containers.

I CAN save you money on bee supplies. Write for prices.
E. G. Lewis, Beeville, Texas.

SOUTHWESTERN distributors for Robinson's comb foundation. Send for price list. Hollowoy Bros.,
Marietta, Oklahoma.

8-FRAME shallow supers, with frames; used once; 20c each.
J. Curtis Alexander,
Route No. 1, Asheville, N. Carolina.

FOR SALE

SEE our display advertisement on page 593.
Loveitt Honey Co.

FOR SALE—Good second-hand 60-lb cans, 2 cans to a case, boxed, at 60c per case, f. o. b. Cincinnati. Terms cash.
C. H. W. Weber & Co., 2163 Central Ave.,
Cincinnati, Ohio.

FOR SALE—90 colonies Italian bees and full equipment, 10-frame, new, full sheets wired foundation. A. L. R. Irish, Britt, Iowa.

FOR SALE—Carload of bees, also nuclei and pound packages of hustling 3-band Italians. 3-pound package with queen, $5.00; 2-pound package with queen, $3.75; 3-frame nuclei with queen, $5.00; 2-frame nuclei with queen, $3.75. Untested queen, 1, $1.00; 12, $11.00. Orders booked free.
W. E. Buckner, Mt. Vernon, Ga.

FARM FOR SALE—96 acres near Albany, New York State. Ten-room house, furnished; three barns; also pig house, granary and hen house. Very reasonable for cash. Address Box H, Am. Bee Journal.

FOR SALE—Our own crop white clover and amber fall honey in barrels and cans; also white alfalfa in cans. State quantity wanted and we will quote prices. Samples on request.
Dadant & Sons, Hamilton, Ill.

$4000 BUYS my 18 acres irrigated, sandy loam truck farm and 50 colonies of bees; located 2 miles from good town.
H. W. Pierce, Bridger, Montana.

FOR SALE—Soiled cane sugar for feeding bees. Get your supply now for spring feeding. Winkler Honey Co.,
Joliet, Illinois, R. No. 1.

FOR SALE—Greatest bargain ever offered on new 10-frame supers, reversible bottoms and covers nailed and painted; also loose hanging frames. Write for prices.
Henry Eggers, Birchwood, Wis.

FOR SALE—In lots amounting to $10 or more, 100 reversible bottom-boards, 50c; 100 metal covers with inners, 80c; 180 full depth brood chambers of wired drawn comb, $2.00; 30 zinc excluders, 20c; 40 colonies of bees, two-story, metal covers, wired combs, requeened in August, $10. All the above is 10-frame standard goods, well painted, nearly new, and disease free. Am selling on account of having no time to look after bees. All prices f. o. b. Newport, Ky., except bees. Dr. Roy Beckett,
50 Forest, Ft. Thomas, Ky.

FOR SALE—100 colonies Italian bees in first-class condition; priced reasonable. For further particulars write.
Fay Ward, Marathon, Texas.

NEW 4-frame reversixle extractor 9⅝ baskets, $35.00.
Lorenzo Clarke, Winono, Minn.

MISCELLANEOUS

NEW HONEY IN December—Atwater.

THE BEE WORLD—The leading bee journal in Britain, and the only international bee review in existence. It is read, re-read and treasured. Will it not appeal to you? Specimen copy free from the publishers. The Apis Club, Benson, Oxon, England. Send us a postcard today. It is well worth your little trouble.

PLANS FOR POULTRY HOUSES — All styles; 150 illustrations; secret of getting winter eggs and copy of "The Full Egg Basket." Send 25 cents.
Inland Poultry Journal, Dept. 56.
Indianapolis, Ind.

PRINTING—Appeldoorn saves you money on quality printing.
C. J. Appeldoorn, Malinta, Ohio.

EXPERIENCE AND FAIR WAGES to active, industrious young man for help in well-equipped apiaries. Seven hundred colonies. April to December. State age, height, weight, occupation, wages. Morley Pettit, Georgetown, Ontario, Canada.

"A DATE WITH YOUR HONEY" for Christmas and you'll enjoy the evening. Just one of our assortment of Hon-E-Nut Chocolates; $1.00 per pound postpaid. Chocolate beehives full of honey and nuts, two for 25c or $1.10 per dozen, postpaid.
Fairmount Apiaries, Schuylkill Haven, Pa.

SEND TODAY for samples of latest Honey Labels. Liberty Publishing Company,
Station D, Box 4005, Cleveland, Ohio.

THE "Archiv fur Bienenkunde" is a valuable scientific publication. "It merits the appreciation of all beekeepers acquainted with the German language," says the Bee World (January, 1923). "The Archiv fur Bienenkunde, now in its fifth volume, is of as high grade as any bee journal which comes from abroad, dealing especially with the scientific aspects of beekeeping," says Gleanings in Bee Culture (February, 1923). Annual subscription, $1. Specimen copy free. Publisher, Theodor Fisher, Freiburg im Breisgau, Kirchstrasse 31, Germany.

WANTED

NEW HONEY in December—Atwater.

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendering. Fred W. Muth Co.,
204 Walnut St., Cincinnati, Ohio.

WANTED—Man for extracted honey. State age, experience and wages wanted.
B. F. Smith, Jr., Fromberg, Mont.

WANTED—Comb honey.
Jamison, 690 Adams, Memphis, Tenn.

BEESWAX WANTED—We need large quantities of beeswax and are paying good prices now. Ship to us at Hamilton, Ill., or Keokuk, Iowa, or drop us a card and we will quote f. o. b. here or your own station, as you may desire. Dadant & Sons Hamilton, Ill.

WANTED—To buy about 150 colonies with winter cases and complete equipment for extracted honey production. Must be free from foulbrood and reasonable in price. Will move the outfit to our own location in northwestern Illinois.
Hawthorne Farm Co., Barrington, Ill.

PARTNERS WANTED—Married, single, either sex. Workers wanted having interest beyond pay envelope. Experience not required. Invest labor and grow into ownership. Good capital investment opportunity. Apiary-poultry-fruit-greenhouse.
The Conservatory, Oshkosh, Nebraska.

WANTED—Double-barreled hammerless or repeating shotgun.
H. W. Boley, Hillsboro, Iowa.

WANTED—Extractor, pump, melter, tanks.
L. M. Gulden, Englevale, N. Dak.

WANTED—50 to 500 colonies of bees; must be within 200 miles of this place. Give price and particulars in first letter.
O. A. Hallberg, Sebastopol, Calif.

WANTED—Buckwheat, partly buckwheat, honey, or other grades except clover. Send Sample and price
J. K. Wolosevich,
913 W. Cullerton St., Chicago, Ill.

WANTED—Comb and extracted honey in small or large lots. Superior Honey Producers Exchange, Delphos, Ohio.

The Illinois State Meeting

The annual meeting of the Illinois State Beekeepers' Association will be held at the St. Nicholas Hotel, in Springfield, on December 6 and 7.

Among the best known speakers will be George S. Demuth, editor of Gleanings in Bee Culture; E. G. Le-Stourgeon, of the Texas Honey Producers' Association; Edward A. Winkler, of sweet clover fame, and C. P. Dadant, of the American Bee Journal.

Prof. Wallace Park, newly-elected head of the Department of Beekeeping at the University of Illinois, will also be present for the meeting.

A Good Publication

The Fourth Manual of the North Carolina Beekeepers' Association has recently reached this office. It is prepared by the secretary, J. E. Eckert, and contains a number of articles of general interest. It deals especially with conditions in North Carolina and with the affairs of the association and every North Carolina beekeeper should have a copy. A list of the active members of the organization is included.

Those interested should write to Secretary J. E. Eckert, State College, North Carolina.

Washington Organizes.

The Washington State Beekeepers' Association is in the process of organization. The following were elected by the various County Beekeepers' Associations as officers of the State Association: G. W. York, president; W. L. Cox, vice-president, and Miss Helen Steiner, secretary-treasurer.

The "Second Annual Honey Week" for the State of Washington was held during the week of November 26 to December 1.

Special Weather Service

Since northern beekeepers like to put their bees in cellar following the last good fall flight, the Honey Producers' League has arranged with the Weather Bureau to furnish information by telegram to interested beekeepers. The beekeeper is to pay only the cost of sending the telegram, and is to be notified whenever a day of over 50 degrees of clear weather is to be followed with cloudy and colder weather. This applies to the region north of the Ohio River and west of Wyoming and Montana. If you want this service, write to S. B. Fracker, Capitol Annex, Madison, Wisconsin.

EARLY AMERICAN BEES

By E. G. LeStourgeon

May I say a word about that primeval American Bee? I do not know whether there was a pre-Columbian species of Apis in America. I care less. But on page 353 (July), I do not think that Mr. Pellett answered the argument of W. H. Lewis by proving that the first bees imported into California were not those brought by Harbison. The significant sentence in the Lewis paper was (page 352) that in early British Columbia there was found "a grey banded bee prior to the recorded importation of grey banded bees from Europe." This significant statement is unchallenged and unaccounted for.

Remember, that in Texas a small wild bee has been observed and described by L. O. Tracy, a keen and accurate observer. Wilder has spoken of his swamp bee of very similar habits and description. Only this summer Mr. C. S. Rude, our State Apiary Inspector expressed to the writer his wish that some scientist would investigate the brown (Maybe this is only a way of referring to a "grey banded bee") bee of Western Texas.

These various references by men from many different districts are worthy of serious thought.

Calling the poet author of Evangeline as a witness is not very conclusive. A poet, using his proverbial license, speaks of the bee as the "white man's fly," and even so careful an authority as the editor of the American Bee Journal uses this as **proof** that no bees were in America before the white man came. Read Longfellow carefully and see how little of an authority he was on other points of history and nature study and you will see what little reliance can be placed here.

Against this is the report of Columbus to his sovereign, already quoted by Jes Dalton, "There is also honey," when listing the resources of Cuba.

Read Irving's "Life and Voyages of Columbus"; references to honey and wax bristle from many a page. I will give some of the more striking references:

In Book 4, Chapter 5, page 191, speaking of Cuba in 1492: Among other articles found in the Indian dwellings was a cake of wax, which he took to present to the Castilian sovereigns, "for where there is wax," said he, "there must be a thousand other good things."

Book 4, Chapter 2, page 166, recounts how he picked up an Indian in a canoe between one island and the Island of Conception. He carried him to land and treated him kindly, "giving him bread and honey to eat and wine to drink."

Book 6, Chapter 2, page 311, recounts that in 1493 a few sailors went ashore and failed to return as promptly as expected. It was feared that the Caribs had massacred them, and an expedition set out to find or rescue them. In making a report of its exploration this party said: "There was honey in hollow trees and in the clefts of rocks."

Book 9, Chapter 1, page 77, gives the report of the 1496 voyage to the Island of Guadalupe and says: "Among other articles found in the houses were honey and wax."

Now, I feel that the above is quite sufficient to prove that Columbus found honey and wax here when he came. Mr. Pellett may be correct in his implied assumption that this was the product of some species of stingless bees, or honey-storing wasp, or ant, but I feel that enough doubt still remains to make very interesting the idea of further research.

(Our correspondent should have read the article mentioned more carefully before stating that the grey bees of the Pacific coast were unaccounted for. By referring again to page 353 of the July number he will find the last paragraph entitled "By Way of Alaska." The bees mentioned as introduced by way of Alaska came from Siberia, and if the writer is not mistaken, all the bees native to Russia are grey banded. This is sufficient to account for the bees mentioned by Mr. Lewis. Since stingless bees are common in Cuba, Central America and South America, references to honey and wax do not necessarily refer to the product of the hive bee.—F. C. P.)

Ontario Convention.

On December 11, 12 and 13, the Ontario Beekeepers' Association will hold its forty-fourth annual convention in the Prince George Hotel, Toronto.

The committee has arranged a program which will hold the interest of all present for the full three days, and as the co-operative organization is functioning, members will be much interested in the address on this subject.

The secretary will be glad to mail programs to those interested, and we welcome the attendance of beekeepers from other parts. Reduced railroad rates will be possible by the use of the certificate plan.

Secure your program from F. Eric Millen, secretary, O. A. C., Guelph.

BERRY'S QUEENS AND PACKAGE BEES

Bring repeat orders because they insure honey crops and satisfaction to the buyer.
Booking orders now for Queens and Packages for 1924 delivery.
Write for descriptive price list.

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GLASS AND TIN HONEY CONTAINERS

2½-lb. can, in crates of 100	$4.00 a crate
5-lb. pails, in crates of 100	$7.00 a crate
10-lb. pails, in crates of 50	$5.25 a crate
60-lb. tins, used, good condition, 2 tins per case	25c a case
60-lb. tins, new, 2 tins per case	$1.00 a case
Glass jars with gold lacquered, wax-lined screw caps—	
8-oz honey capacity, 3 doz. per carton	$1.50 per carton
16-oz. honey capacity, 2 doz. per carton	$1.30 per carton
3-lb. or quart capacity, 1 doz. per carton	$1.00 per carton

HOFFMAN & HAUCK, Inc., Woodhaven, N. Y.

A Marketing Conference

The annual meeting of the Oregon State Beekeepers' Association will be held at Hermiston, Oregon, December 11-12, possibly continuing over into the 13th. It is the plan this year to make the annual meeting a Northwestern Conference of Marketing. Invitations are being sent out to the leading beekeeping associations in Washington and Idaho, asking that they appoint official delegates, and urging that as many other members as possible attend this conference. The beekeepers of Oregon have long felt, as no doubt the other beekeepers of the Northwest have, that there should be closer co-operation between the larger producing areas of Oregon, Washington and Idaho. It is with this object in view that this conference is being called, and to encourage the associations in other states to send delegates, the Umatilla Beekeepers' Association has kindly offered to furnish free entertainment for all official delegates while at Hermiston. It is hoped that a representative of the American Honey Producers' League shall be present. Several men of wide experience in marketing problems will be present at this meeting. There will also be a conference of county bee inspectors in connection with the State Association meeting. Every beekeeper in Oregon should plan to come.

H. A. Scullen, Sec'y.

Convention Dates

The following dates for winter conventions have been announced:

Wyoming, at Thermopolis, Nov. 30 and Dec 1.
Colorado, at Denver, Dec. 3 and 4.
Nebraska, Omaha, Dec. 5 and 6.
Iowa, Des Moines, Dec. 5 and 6.
Illinois, Springfield, Dec. 6 and 7.
Wisconsin, Milwaukee, Dec. 6-7.
Chicago-Northwestern, Great Northern Hotel, Chicago, Dec. 6-7.
Indiana, Indianapolis, Dec. 13-14.
Michigan, Lansing, Dec. 13 and 14.
Oregon, Hermiston, Dec. 11-12.
Ontario, Toronto, Dec. 11-12.

A Georgia Resolution

Reports that diseased bees had been shipped by some Georgia dealers led to the adoption of the following resolution at the recent convention:

Whereas, Notice has come to the attention of the Georgia State Beekeepers' Association that, on account of complaints coming to the State Board of Entomology from various states, as to the reliability and integrity of certain Georgia bee and queen breeders, to whom the state has granted license for shipping, not having complied and co-operated with said board, in a manner satisfactory for controlling bee diseases according to the laws of the state, the Georgia State Beekeepers' Association desires to go on record in support of the State Board and against such unscrupulous offenders;

Be it therefore Resolved, That the Georgia State Beekeepers' Association, in session assembled at Atlanta, Ga., in the annual state meeting, on October 12, 1923, request the State Board of Entomology to thoroughly investigate the honesty and trustworthiness of any and all applicants for state license for the shipping of bees and queens, that a rigid enforcement of present laws and such other laws as the State Board may deem necessary as safeguards, be carried out to the letter, and we further request a revoking of the license of any shipper whose case is not satisfactory to the State Board.

J. J. Wilder,
S. V. Brown,
A. R. Irish,
Committee.

Advertising Honey.

I bought twenty of those little advertisements for 50 cents. I am running these ads in our weekly paper and they are bringing wonderful results. Every month or so I put an article in our home paper on how bees are kept. This costs me nothing. Of course, I send the editor a pail of honey once in a while. He appreciates that the same as I appreciate his publishing my article about bees.

Besides the ads which I am running, I have movie slides advertising Badger brand honey, which is a good way of advertising the dealers handling honey. Without advertising, beekeeping will never be a success.

Louis A. Loboda.

If You Want Bees When You Want Them — Try Us

Yes, they are Italians. Of course you have seen October and November ads. We will refund ten cents per day for each nuclei after five days of delay from date contracted, and we do not expect to have to refund any money. New kinds of prices being based on date of shipment. Write for them.

J. G. PUETT & SONS

Reference—First National Bank, Moultrie, Ga.

For years we have been shipping thousands of pounds of bees all over the U. S. and Canada

Order Direct from this Ad.

We are prepared to take care of your rush orders

2-pound package bees, $3.75 each, 25 or more, $3.60 each.
2-frame nuclei same price as 2-pound packages.
3-pound package bees, $5.25 each; 25 or more $5.00 each.
3-frame nuclei same price as 3-pound packages.

Untested queens, $1.00 each, 25 or more 85c each, $70.00 per hundred.
This is a special SALE on untested queens of high quality.
Select untested, $1.70, 25 or more $1.50 each. Tested $2.25 each, 25 or more $2.00 each.
Select tested $2.65 each, 25 or more $2.25 each. Breeders $5.00 to $15.00.

ITALIAN CARNIOLANS GOLDENS

AULT BEE COMPANY, San Antonio, Texas

SUCCESSORS TO NUECES COUNTY APIARIES

ANTS

Here are two articles on destroying ants. The first is from our friend, Dr. Brunnich, of Switzerland. He writes:

"I have a very efficient remedy against ants, when I cannot find the nest. I place sweetened water in a small vessel located in a place where the bees cannot reach it, or covered with a screen so that the ants only can get at it. After the ants have begun to feed upon this sweetened water I add to it some borax until it contains about two per cent of this drug. They soon disappear and I believe it poisons their brood. Arsenic might be used in the same way, but they do not take it so readily."

The other remedy is given by an Arizona beekeeper, as follows:

"Having read in your paper numerous remedies for use against ants, I wish to offer one that is much used in this state, and one that I have found very effective and cheap.

"It is London purple, sprinkled upon the openings to their nests, as practically all the ants here nest in the ground.

"The ants that give the most trouble are very tiny, red fellows, that are very fleet-footed, and I have trailed them for more than 50 yards, sometimes; they are usually in great numbers and easily trailed, there being a continuous stream of them. So small are they that they can pass through an ordinary window screen with ease, and I have even known them to follow the screw threads of the cap of a honey can and gnaw through the paper liner.

"It seems that the ants carry the London purple, which is a very fine powder, upon their bodies to their brood, thereby killing the whole colony.

"During frequent rains it might be necessary to apply the poison several times, as it is easily washed away, but I have found one application sufficient, if no openings were overlooked, and the effect is immediate. As London purple is composed largely of arsenic, it will not do, of course, to use it in or on beehives, for it is deadly to any insect.

"If it were not for this remedy I would find it diffcult to handle honey without great annoyance; but whenever ants invade the honey room I trail them to their nest, sprinkle some of the powder upon and around each opening, and am certain that **they** will not trouble me again.

"A 25c package of the poison will last me two seasons, and is enough for the eradication of scores of colonies." H. E. Weisner.

MORE ABOUT ANTS

By E. M. Cole.

In his "Feminine Monarchie" Butler lists the ant as an enemy of the bee.

In that day they were known as "Emmets". In my copy (1623) the pages are not numbered, but in Chap. 7, note 21, he says:

"If Emmets bee neere your Bees, they will much trouble them, biting them and hanging upon them; although the Bees if they be lustie, will kill many of them that come to the hive. But if it be a poore stall, they will in time possesse the hive, and eat up the Honie. The best remedie against them is to scald them."

Bevan (1827) p. 205, gives an interesting method of protection against ants: "Slaked lime may be spread about a foot wide round the apiary. The usual custom has been to renew this every two or three days. But the experiments of Mr. Coleridge show that this step is unnecessary; by exposure to the air lime is converted into chalk, and according to Mr. C. (who states that the formic acid transpires from the bodies of ants so as to leave its traces upon the substances which they traverse), if ants attempt to pass over chalk the effervescence produced between the chalk and acid will be so considerable as to burn their legs."

If this is true, an apiary well sprinkled with slaked lime ought to be free of ants.

A Note from Maine.

We have two distinct honeyflows here (Brunswick), the first from white clover from June 15 to July 20, and the other from goldenrod from September to November 1. I have been trying to interest the farmers in Hubam clover, and one has succeeded in getting it started. About one-half acre is in bloom on October 21 and his bees are as busy on warm days on the Hubam as they

IT'S NOT WHAT YOU **EARN** BUT WHAT YOU **SAVE**

BEEKEEPER'S who bought "SUPERIOR" supplies for the season of 1923 AVERAGED TEN TO TWENTY PER CENT SAVING on such purchases, compared with what they would have paid elsewhere for goods of the same quality.

MOTTO: "GET 'SUPERIOR' SUPPLIES—THEY PAY DIVIDENDS"

SUPERIOR HONEY COMPANY, Ogden, Utah

Manufacturers of Beekeepers Supplies

Branches at Idaho Falls, Idaho and Riverside, Calif.

N. B: We are in the market for COMB HONEY and BEESWAX

were on white clover in June. I think Hubam will fill in the July and August dearth and give Maine beekeepers about six weeks longer season. If so, we won't take a back seat for either quantity or quality of honey. As it is now, we can average 75 pounds per colony of the finest comb honey.

J. E. Langen, Maine.

BLACK VS. YELLOW DRONES

By Alex Holst.

In your issue for September, page 459, there appears an article, "Black Color vs. Yellow," by Mr. D. Roberts, Isle of Wight, England, in which he advances the theory that the cause of the "blackening" of Italian colonies, if left to themselves, is, that the black drones must be much stronger on the wing than the drones from Italian queens from Italy, etc.

Simmins, in his Modern Bee Farm, gives the same explanation, viz.:

"Many beekeepers and some of the various breeders endeavor to secure the correct mating of Italian queens in this country, but the process is such a disappointing one to the majority that the attempt is soon given up as an impossibility. Ninety-nine queens out of every hundred turn out mismated, and the average breeder is content to produce more hybrids. **The native drone is so much stronger on the wing than the average Italian that the latter is sure to fail.**" (Page 336, 1914, Edition).

Although it would be more than preposterous to raise one's voice under such circumstances, yet it seems to me that there can be a much more natural reason given for the phenomenon in question.

Good beekeeping and Italian bees are usually identical, and one of the endeavors of good beekeeping, or rather successful honey-production, is **restriction of drones** by means of comb foundation. Consequently there are very few Italian drones flying compared to the numberless masses of black drones from box-hive beekeepers and from bee-trees. Less than one per cent of comb surface in a well-kept colony under domestication goes to drone-breeding, while in a bee-tree as much as 75 per cent of the combs will be drone size. I believe that a single bee-tree, or perhaps two, will produce as many drones as a well-kept apiary of 100 hives. If an apiary is therefore located where "wild" bees are around, and although the drones of either kind may be **equally strong** on the wing, the chances will be that one of the numberless "wild" drones will mate with the virgins from the apiary.

Being of a somewhat observant nature, I have myself noticed certain signs that would **rather go to prove the opposite** of the contention and would **indicate that the yellow drones are the stronger** and swifter. If a single yellow colony be placed in a location where only black bees are flying, the virgins from this colony will surely be mismated; but it will last only a short time before the black bees around will show intermixture with yellow bees, and **this in spite of the few Italian drones,** and the numerous black drones flying.

Of course, the drone question is of very great importance to the beekeeper, and may be even more complicated because drones from Italian colonies sometimes (or very often) are sprinkled with black drones. Very few colonies, perhaps not more than two or three per cent in the average run, show **entirely uniform** drones (which can, of course, be explained through the Mendelian Laws); but even when this problem be solved, much will be left for the breeder to ponder over; most likely the solution of really improved honey-gathering strains will only be found when the question of the chromosomes be fully understood, as the honey-gathering capacity or instinct is **very likely connected with a single chromosome.**

Another bee phenomenon which would also be interesting to understand fully, is **afterswarming;** if this is possibly a means of ridding the colony of queens **reared from the older (or too old) larvæ?**

There were quite a few other things I would have liked to mention, but they will have to wait. I will therefore conclude the letter and only mention a single freak which I noticed a few days ago. I had a colony containing 40 deep frames (39 wax combs and one aluminum comb), nine of which contained brood; the aluminum comb among them, contrary to the rule. On these combs I found four queen-cells **two on the aluminum comb** and two on the adjoining wax comb.

Virgin Islands.

A Bulletin That's Different

We have just received a copy of the bulletin "Habits and Activities of Bees," by Prof. Francis Jager, of the University of Minnesota. Instead of covering the usual matter considered in a popular bulletin on beekeeping, this one deals entirely with the habits of the insects. The subject matter is exactly what its title implies, and there is nothing about management of bees or the production of honey. There are 20 pages of material relating to the instincts and habits of the bees illustrated with a number of good pictures. Those interested can probably secure copies by addressing the Division of Bee Culture, State University, University Farm, Minnesota.

Bees and Honey at Brockton Fair

The Brockton fair, one of the big fairs of the east, has lately featured the bee and honey department with Mr. John B. Perkins as chairman. Mr. Perkins states that his greatest difficulty is to get beekeepers to properly prepare and pack their exhibits for shipment to insure their arrival in good condition. A special judge is employed with care to insure that he is fully competent.

For next year's exhibit it is proposed to insist that all comb honey weigh not less than 15 ounces to the section to be eligible.

Special attention is given to the children's bee clubs.

Western New Yorkers to Meet.

The Western New York Honey Producers' Association will meet in the hall of the Buffalo Society of Natural Science at Buffalo on December 3 and 4. Eastern beekeepers should take note of the date and place of this important convention.

HONEY WANTED

We are ready at any time of the year to take in small or large lots of extracted honey.

Send us a sample and advise quantity you have and the price wanted.

HOFFMAN & HAUCK, Woodhaven, N. Y.

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BURR COMBS

Let's Eat the Doughnuts then We Can't see the Holes

By M. G. Dadant.

A doctor friend of mine, who happens to belong to the same duck-shooting organization as the rest of us, has chosen a victrola record as the official camp record. It is entitled "Everybody's Talking About the Doggone Blues, but I'm Happy." He says that's the trouble with too many people; they take so much time thinking about being blue that they forget to be happy.

So I am starting out on the other foot in this page to be optimistic and let pessimism light where it may.

Anyway, why shouldn't I be optimistic? That same doctor informed me a couple of weeks ago that he had brought another boy to our house to board (Oh, no, it isn't the first one, we already had two boys and a girl).

We had a mighty hard time to name him. My wife says our house was already pretty well filled before he came, but, believe me, when that new boy isn't filled he fills the room with his cries and fills the whole household with confusion. If grandma happens to be there, of course she fills with sympathy; naturally I am filled with pride. So what could the new name be but Phil. That's just what we call him, Phil.

So, even though we haven't got our fill of Phil, still he fills a full place in an already filled household.

Another thing happened just lately that makes me mighty optimistic. We got a letter from a good subscriber, way off in Texas, who said that he had saved $1000 through some information he had gotten in the Bee Journal. By jinks, within two days after he wrote that, one of our best advertisers said that our November number was the best number we had ever put out. What do you think of that for a coincidence? And neither one of those fellows, I bet, knew that the other one was giving us such a wonderful tip. These kinds of boosts, coming as they do when a fellow is trying to figure out how he can save money by paying 9 cents for Bee Journal paper now where it used to cost only 5 cents, and by paying $4.00 for an ordinary halftone that could be bought earlier for $1.50, and for that matter trying to save money on getting the Bee Journal set when it costs 60 cents per thousand ems where it used to cost 30, and where make-up and composition cost $2.00 an hour where they used to cost $1.00—I say that kind of letters can't help but make a fellow an optimist.

Then I've got something else to be optimistic about, and that is that I am secretary of one of the livest bee associations in this country. Of course I consider it so, anyway, because I am the secretary. And I am especially optimistic about it since I am about to fill out my second term and let somebody else take the pleasure away from me for another year.

About this secretary business, how many of you fellows belong to your State Beekeepers Association? If you do, do you know how much you pay the secretary? It might pay to investigate a little, then you would see the reason for my extreme optimism. Funny, though, that nobody seems to have thought very much about putting a beekeeping secretary on a real live salary, so that he would try to work instead of shirk; in other words, so that he could afford to work instead of shirk. That's the way they do in other live industries. Why shouldn't it be done in the beekeeping industry as well?

That brings to my mind a statement made by an advertising agent to me not long ago about the amount that is usually spent by a business concern in advertising. He stated that the percentage of gross sales spent by different businesses in advertising ranges usually from 2 per cent to 10 per cent, but that the average was in the neighborhood of 5 per cent.

Of course, there are a lot of outfits, which sell largely wind, that spend probably 50 per cent as an advertising appropriation.

But let us take the 5 per cent average for instance. Nobody will argue but what the beekeeper is a business man, as well as the manufacturer or the plumber. Then why shouldn't he spend his little old 5 per cent for advertising? A hard-headed business man who usually spends his vacation in trying to work off some nervous trouble he has inherited through trying to boost up his business, thinks no more of spending his 5 per cent than he does of buying his letterheads and envelopes. He knows that it brings back the business and that he can get business in this way at a figure that will make it remunerative for him.

Now why the dickens can't we do the same thing in the beekeeping industry? Take a neighbor of ours here, for instance, that produces 10,000 pounds of honey every year and sells it at jobbing prices around 10 cents a pound. His gross sales amount to $1000. Five per cent of this would be a cool $50 to be spent in advertising.

Looking at it in a broader angle, we produce in this country about two hundred million pounds of honey annually. Suppose we stuck a 5 per cent advertising fee on the turn-over of this honey at 10 cents a pound.

Whooee! a whole million dollars in a lump sum or to be spent by individual beekeepers as an advertising appropriation for a single year. What do you think of that?

I'll bet a round dollar against the next compliment I get on my Burr Combs page that about one-tenth of this appropriation, or one-half of one per cent of gross honey sales, would be enough to raise the price of honey one cent per pound average all through the United States.

I tell you, fellows, the only trouble is we beekeepers are too pessimistic.

We are looking so hard at the hole, and at the other fellow who is trying to hold the price of honey down, that we forget that the doughnut has sugar on it until it all gets mouldy.

I can't get over that million dollars, figuring at the rate of 5 per cent on the honey crop. It sounds bigger the longer I think of it. Especially when I go back and figure about what the total salaries of all these secretaries of beekeepers associations in this country must be and how it must compare to the cool million. The beekeepers' association, of course, is one of the very best mediums through which advertising could be pushed.

The average beekeepers' association secretary has either got to be an optimist or a "goat," or he'd fire himself pronto. I know none of the unfortunates like to be "goats" any worse than I do, so let's call the whole "bloomin" bunch optimists.

Even if we can't all be Chicago plasterers at $2.00 an hour, at least we can enjoy life while we are young.

Whoap! there goes that baby. Now he is quiet again. Just a little honey on the end of a teaspoon did it. Gosh, if every mother in the U. S. tried that out with a 10-pound bucket of honey, wouldn't that help us pay that theoretical advertising appropriation, though?

Let me see. I'll get the statistics book and look up just how many million of pounds would be used every time the baby squalls. On second thought I won't, I'll just let you look it up.

New Circular on Bee Diseases.

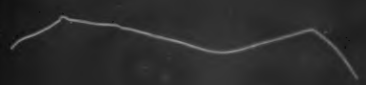
In a new department circular, No. 287, "The Occurrence of Diseases of Adult Bees, II," E. F. Phillips, apiculturist, discusses the characteristics and European distribution of Isle of Wight disease, methods for controlling it abroad, and the measures taken in this country to prevent its introduction. A copy of the regulations governing the importation of adult honeybees into the United States is included in an appendix to the bulletin.

From Colorado.

In twenty years there have been only two years when I have had no surplus, but my bees always have enough for winter and to build up on in spring. Feeding is never necessary unless we have some unusual weather with hail in June. That destroys all forage. For winter protection I only use tar paper.

Daniel Danielsen.

Morgan County, Colorado.



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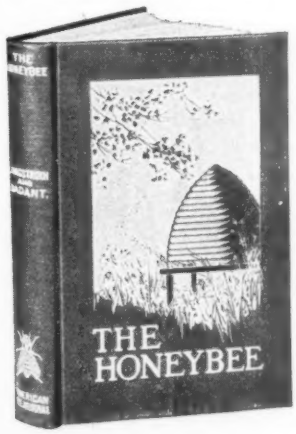

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